

# COMPUTERWORLD

## Migration costs stoke user angst

### D&B customers balk at added charges

By Rosemary Cafasso  
CHICAGO

Dun & Bradstreet Software ticked off some of its customers last week by launching a client/server migration program that could be far more expensive than users had expected.

"We paid for their software, and now this is pay-by-the-drink," griped longtime customer Susan Markofski, director of financial systems at Inova Health System in Falls Church, Va., which runs several D&B host-based packages.

D&B announced the migration program, called Smartpath, as part of its professional services offering. Some users had anticipated, however, that it would be bundled with the Smartstream license fee.

D&B would not disclose professional services fees, but analysts said software companies often charge from 20% to 50% of a software license fee for associated services. Smartstream's starting price is \$100,000.

In follow-up interviews, D&B officials backed off the professional services plan and said they are still evaluating how to price the migration service.

#### Stinging issue

But with the Smartpath launch, the Framingham, Mass.-based vendor stepped into what is fast becoming a hornet's nest for the industry: the debate over what constitutes reasonable pricing for client/server migration services. This is a largely untested and tricky area, and prices for consulting engagements can range from \$50,000 to well over \$1 million for a

Migration, page 15

Get in line	
Many hands are awaiting their share of the proceeds from the \$145M sale of Borland's Quattro Pro to Novell	
Taxes owed	NA
Revolving credit to banks	\$30M
Short-term debt	\$21M
Estimated first-quarter operating loss	NA
Lotus lawsuit judgment	NA
Remainder	\$94M
Borland did not provide tax information. Lawsuit judgment still to be determined.	
NA: Not available	

Source: Wall Street analysts

## Borland's plight worsens

### Losses expected, earnings reports delayed; stock slumps

By William Brandel

With no new products in the channel to bolster flagging revenue and the outlook for its underdelivered products diminishing, Borland International, Inc. last week postponed its fourth-quarter and year-end earnings reports for the third time in two weeks.

The continuing delays, coupled with Borland's announced expectation of a significant loss, have left Wall Street analysts speculating that something is terribly amiss in Scotts Valley, Calif.

The earnings postponement had ominous implications for Borland's stock. As of Thursday last week, it had triggered a 14% drop in the firm's stock price, from 11% to 10.

The company has now formally scheduled

the reports for June 2, more than two months after the quarter ended March 31. Borland last week also said it anticipates a loss for its first quarter, which ends June 30. This follows the substantial loss that analysts were bracing for last week.

#### Roll of the dice

Borland's earnings "are a crapshoot," said Michael Wallace, an analyst at UBS Securities in New York. "Who knows what they'll announce? It should be a pretty ugly scene."

Borland's financial woes leave its database competitors in a position to raise serious doubts about the company's ability to service, upgrade and support its database product on a long-term basis.

Borland, page 16

## Never, never pay full price!

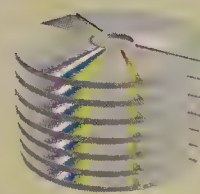
By William Brandel

The age of shrink-wrapped software is over.

Well, perhaps not overnight. But the combination of site licenses and software vendors' growing in-

terest in electronic software distribution is pushing out applications at prices users are finding too good to pass up.

The promise of lower prices stems from many factors, among them the reality that volume li-



Today, 5.4 million CD-ROMs are installed in businesses worldwide, and 6.2 million units are in homes, according to International Data Corp. Yet shipment of CD-ROM drives to companies nearly doubled from 1992 to 1993, from 1.2 million to 2.2 million.

#### Electronic data interchange

## U.N.'s global trade net to connect 50 countries

By Lynda Radosevich

Jean Schroeter recently expanded the customer base of her Future Fantasy Bookstore virtually overnight, leaping beyond the boundaries of the bookstore's Palo Alto, Calif., neighborhood to the world at large.

Schroeter managed this feat through an electronic commerce pilot project that enables her to list her science fiction books on the Internet. The project uses software and assistance from Digital Equipment Corp.

"Now I'm selling to people in Singapore, Norway, Iceland... People out there are just starved for

books," Schroeter said. After only two months of being online, the bookstore now brings in 5% of its total sales from international business, she estimated.

The bookstore's success is one example of what the United Nations plans to develop on a worldwide basis. In October, the U.N.'s Conference on Trade and Development will unveil an international network of connected "trade points," or designated trading

U.N., page 12

cense deals with large information systems accounts and the pricing of product suites have driven suggested retail prices into obscurity. Microsoft Corp. acknowledged as much last week when it announced that it would abolish suggested retail pricing on July 1.

#### Irrelevant info

"I don't even pay attention to it," said one IS manager at a large financial firm in Boston. "For the amount of software we buy, I am more interested in how much discount we will receive for how much software."

In fact, users are enjoying software discounts of up to 70% off the street price.

"By buying LAN-based software at volume prices, we are seeing

Full price, page 14

### SPECIAL QUARTERLY SECTION

## RE-ENGINEERING THE WORKPLACE

... Every company talks a good game about serving customers, and U.S. firms will spend more than \$1 billion this year on customer-focused technology. Much of that spending will support re-engineering of order-entry, help desk and customer service functions. After all, the customer is always right for re-engineering. Page 100



DICK ETHIER of the Fort Myers (Fla.) News-Press



## REPELLING

### the Wily Hacker

Companies are concerned about Internet security — and they should be. Penetrable protocols and leaky servers are two ways wily hackers gain admittance to data. The best defense against the bad guys? A solid firewall. **See In Depth, page 113**



JANET HAMLIN

113

## NEWS

■ **OLE** could allow host applications vendors to keep a tight rein on customers rather than give users more flexibility. *Page 4*

■ **Multimedia** venture Kaleida apparently got caught in a turf war between parents IBM and Apple and cutbacks are the result. *Page 4*

■ **IBM PC Co.** plans a batch of desktop and mobile computer announcements. *Page 6*

■ **IBM DB2 users** say IBM has work to do to get its various DB2 databases working more like the scalable, in-synch family IBM had promised. *Page 7*

■ **Apple** readies its next generation of **PowerBook** notebooks. *Page 8*

■ **Interest in Digital's Alpha AXP** servers picks up, but it doesn't represent a landslide. *Page 10*

■ **IBM** plans to implement the **Smalltalk** language across all of its systems by 1995. *Page 16*

■ **Cisco** will unveil software designed to ease the task of **meshing** SNA and LAN traffic in router-based internetworks. *Page 16*

■ **Mainframe** storage vendors are developing **disk arrays** that can be hosted by either mainframes or Unix systems, giving users protection for their storage investments. *Page 24*

■ **Micro Focus** users welcome the firm's advances in client/server and object-oriented technology. *Page 30*

## DESKTOP COMPUTING

■ The PC group may be a beacon of hope in Digital's rough seas. *Page 43*

## WORKGROUP COMPUTING

■ A big question for attendees of Sybase's international users group was who gets custody of the kids in the Sybase/Microsoft split over SQL Server. *Page 55*

## ENTERPRISE NETWORKING

■ **Novell** may find that its recently announced direct support offering, the **Corporate Account Program**, alienates some major customers. *Page 63*

## LARGE SYSTEMS

■ **Data center** work loads are still growing, but **expenditures** for technology and personnel are shrinking, according to Nolan Norton's annual data center baseline survey. *Page 79*

## APPLICATION DEVELOPMENT

■ **Interoperability** between key object standards — Microsoft's OLE and the Object Management Group's Common Object Request Broker Architecture — is beginning to emerge. *Page 85*

## MANAGEMENT

■ **CIOs take note**, if your background is strictly on the technical side, your job could be at risk. It's time to replace yourself. *Page 85*

## CAREERS

■ **SQL expert** wanna-bes should acquaint themselves with the DB2 optimizer. *Page 121*

## MARKETPLACE

■ **On-line** help in productivity software still needs improvement. Users find the answers they need only half the time. *Page 134*

## COMMENTARY

■ **Bill Laberis** says Digital has to learn from its past and streamline its management. *Page 36*

■ **Robert Frankenberg** brings a user's outlook to the top of Novell, **James Connolly** notes. *Page 37*

■ **John Gantz** says Notes does provide payback. *Page 37*

■ **Jeffrey Henning** says Apple's PowerPC strategy hasn't met its potential. *Page 47*

■ **David Coursey** says now is a bad time to buy E-mail. *Page 55*

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## Executive Briefing

**A worldwide electronic commerce network** is being prepared by the UN Conference on Trade and Development. Due in October, the network is a global version of the information superhighway. It will use technologies including the Internet, and each country will have a designated trading point. *Page 1*

**Life does go on for an IS organization** after its company does massive outsourcing. But the road can be painful and the result may not be life as the IS group knew it before. *Page 89*

**Re-engineering the workplace:** Field service, order-processing, help desks, marketing and other customer-focused functions top the list of re-engineering priorities. *Page 100*

**Software vendors that have focused** on server-based environments are trying to rearchitect their pricing to respond to user moves toward enterprisewide distributed computing installations. However, one of the great challenges is to find a pricing scheme that is fair to both the user and vendor. *Page 14*

**Computer Associates' systems software users seem upbeat**, saying last week that the CA they once knew has changed during the past three years. The vendor's product support has improved considerably. One result, according to attendees at a CA user group meeting last week, has been that customers are able to focus on technical matters rather than support concerns. *Page 20*. However, **D&B Software** users were more critical, particularly of D&B's new client/server migration program. *Page 1*

**Denver International Airport's grand opening** was placed on indefinite hold recently due to continuing problems with a computerized baggage-handling system. The airport employs a series of distributed computer systems, tied together over a shared fiber-optic FDDI data network. *Page 30*

**Baxter Healthcare**, whose proprietary **ASAP** on-line ordering system was one of the legendary "strategic information systems," is replacing ASAP with a standards-based package that will not be owned by Baxter. *Page 63*

**In an effort to leverage its customer information**, Service Merchandise recently installed a sophisticated new database. The company cut over from **Computer Associates' CA-IDMS** marketing database to a specialized Unix-based marketing database. *Page 79*

## The 5th Wave by Rich Tennant







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# Kaleida caught in IBM/Apple turf war

Company reduces work force and directs energy toward completion of multimedia authoring tool

By Ed Scannell and Mark Halper

Apparently caught in a turf war with parents IBM and Apple Computer, Inc. for a share of the still emerging multimedia market, Kaleida Labs, Inc. last week said it is curtailing much of its interactive TV efforts as part of a 35% work force reduction.

Kaleida officials said they are harnessing the company's energies to accelerate completion of its long-overdue multimedia authoring tool for computers, called Script X. IBM and Apple have invested an estimated \$60 million in Script X development thus far.

Kaleida will halt development of a TV set-top operating system, a decision that threw into question a deal struck a week earlier by Scientific-Atlanta, Inc., Ameritech Corp. and Digital Equipment Corp.

## Million-dollar deal

That deal, worth some \$600 million, calls for Ameritech to deliver interactive and multimedia services to potentially hundreds of thousands of homes over its telecommunications lines.

Homeowners would receive the ser-

vices through Scientific-Atlanta's digital cable technology and set-top boxes running Kaleida's operating system. Those set-top boxes would also include Kaleida-designed graphics and a memory controller chip, called Malibu, that will be manufactured by Motorola, Inc.'s Semiconductor Products Sector.

Last week, executives from Scientific-Atlanta sent a written proposal to IBM suggesting how all parties could work out an arrangement in which Kaleida finishes its projects, sources close to the proposal said. That would allow the Ameritech/Digital/Scientific-Atlanta deal to go forward, they added.

That cooperative arrangement, which reportedly could lead to the spin-off of the Kaleida team responsible for the set-top box technologies as a separate company, was still under consideration as of late last week, the sources said.

"Whether the parties involved jointly decide to spin off a separate company, or a team from within [Kaleida] sells themselves to other parties, this technology will make it to market," said one source close to the talks.

Kaleida Chief Executive Officer Mike

Braun said the firm will transfer its interactive TV work to another venture, allowing the Ameritech deal to go forward. The interactive TV team could move to Apple, IBM or another company, Braun said.

About 15% of Kaleida's 126-person work force will leave to develop the operating system, called the consumer operating system (COS), he said. That 15% is in addition to the 20% work force reduction Kaleida announced last week. Braun said Kaleida will cut the 20% from sales and general administration.

## Interactive concerns

An Apple spokesman said Kaleida ceased its COS development at the behest of Apple and IBM, but not because either company objected to competition from Kaleida. Rather, Apple and IBM were concerned that Kaleida's interactive TV efforts were "taking management time away from development of Script X," the spokesman said.

Other sources claimed that IBM and

Apple barred Kaleida from participating in the Ameritech deal because they each have their own interactive TV efforts Kaleida upstaged.

Braun disputed that scenario, noting that Kaleida has been working with Scientific-Atlanta for about six months.

"This story that Apple and IBM woke up one day and decided to crush it—it just didn't happen that way," said Braun, adding that it was a coincidence that Scientific-Atlanta and Ameritech announced their deal a week before Kaleida changed its business strategy.

IBM and Apple did not have interactive TV development underway when Kaleida began its efforts, but each company has since initiated development efforts,

Braun noted.

Braun acknowledged, however, that there had been disagreement among Kaleida, IBM and Apple over interactive TV development as they decided that Kaleida would discontinue interactive TV operating system development.



Kaleida's CEO Mike Braun: The interactive TV team could move to Apple or IBM

## Application development

# Microsoft's OLE may restrict users to single product line

By Stuart J. Johnston and Ed Scannell  
REDMOND, WASH.

For the past five years, Microsoft Corp. executives have evangelized that the days of so-called "monolithic" applications with every possible feature built in are numbered.

In the place of these applications, Microsoft maintains, will be "container" or host applications, plus a slew of smaller applications and add-ins that give users the ability to pick and choose best-of-breed features for their container applications of choice.

Microsoft has pitched its Object Linking and Embedding (OLE) technology as a way to let users have generic applications objects they can just pick and choose to roll into their host or container applications.

## Manipulating customers

But that turns out to be not exactly true. In fact, it looks like OLE could become a way for host applications vendors to force customers to stay loyal once they have picked the add-in objects they want—even if a competitor comes out with a product with more compelling features.

For example, add-in programs based on Microsoft's highly touted object technology are far less interchangeable among competing host applications than

was originally anticipated.

"We've seen this in numerous other markets where a program became the standard and stays that way even after it's no longer the best product because of all the add-ins [available for it]," said Jesse Berst, editorial director of "Windows Watcher," a newsletter here.

He cited Borland International, Inc.'s dBase as a classic example of inertia that restrains users from moving to a better product because of the plethora of add-ins for the established product and the scarcity of the same add-ins for newer competitors.

In order to work well inside a host application, like any of Microsoft's Office applications, add-ins will have to look like them.

This means the user interface code for the object application has to be customized for each host application.

Therefore, a vendor such as Shapeware Corp. cannot have just a single version of its Visio Express. It must have one for Microsoft's Office, one for Lotus De-

velopment Corp.'s SmartSuite and so on.

"Microsoft, as usual, is way ahead because they are building their component architecture around suites, [meaning that] it is increasingly Office-oriented," said Jeff Tarter, editor of "Soft Letter," an industry newsletter based in Watertown, Mass.

While such sameness in the user inter-

face is important to end users because it makes training and support more efficient, the approach has a downside, some users and analysts said.

"They're not competing on features and performance; they're competing on look and feel," said Bill Cornfield, presi-

## Extra resources a concern

Additionally, the extra resources required on the part of third-party developers to have separate add-in packages for competing applications suites may also be a drag on users' ability to get the add-ins they want for the container applications they would like to run.

"It's a cause of concern for people like Lotus," Cornfield said. "[Microsoft is] saying 'Will you comply with the [Microsoft] Office standard?' If they can get companies to do that, it's going to be a major victory for Microsoft."

However, Microsoft officials said they think the worry is overblown and that competing on user interface issues will only spur innovation in the Windows environment.

Vendors are bringing out ways to allow different object models to communicate. See page 85.

Microsoft Excel - EARNINGS.XLS					
File Edit View Insert Format Tools Data Window Help					
100%					
110					
B C D E F G					
ENCORE MUSIC					
Auditing					
1					
2					
3 Earnings Estimates Q1 Q2 Q3 Q4 Totals					
4 Revenues 21,759,050 23,194,925 9,642,965 44,953,975					
5 Cost of Goods 8,496,029 9,046,020 9,642,965 #N/A #N/A					
6 Gross Profit \$13,273,021 \$14,148,905 (\$9,642,965) #N/A #N/A					
7 Marketing 3,263,858 3,479,239 3,708,833 3,953,578 14,405,507					
8 R&D 1,740,724 1,855,594 1,978,044 2,108,575 7,682,937					
9 Total Wages 2,611,086 2,783,391 3,089,100 3,295,500 11,779,077					
10 Insurance 652,772 695,848 741,767 790,716 2,881,101					
11 Operating Expenses \$8,268,439 \$8,814,072 \$9,517,744 \$10,148,369 \$36,748,623					
Earnings / COGS					
Ready					

Microsoft's Excel is a container application that uses OLE to pull in financial data from another program



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# Clinton initiative pushes the flat panel

**T**ired of maneuvering those bulky CRTs around the office? Do users complain that the multiple screens on their desks are hogging all the space? Do you hear, "Why can't my office convert to flat-panel displays that swivel in and out or disappear altogether when not in use?"

"Fat chance," you say, noting that the price of a shrimpy flat-panel display is four times that of a CRT. Well, the prospects for mass-produced, full-size flat panels are going to improve if President Clinton's Department of Defense gambit succeeds.

The DOD is proposing a small, \$600 million investment over several years for flat-panel research and development, offering the most money to those vendors willing to invest on their own in production facilities. (A Japanese active-matrix flat-panel factory is estimated to cost \$500 million.) The goal is to build the U.S. share of global flat-panel production to 15% from its current dismal 3%.

Clinton is couching the initiative in terms of the DOD's need for an assured flat-panel supply. Nevertheless, this is federal industrial policy disguised as defense procurement. Clinton would like to ignite a sputtering segment of U.S. high tech. He just might succeed with this GATT-skirting initiative.

The existing active-matrix LCD technology is difficult to fabricate. Japanese producers like Sharp and Toshiba are heavily invested in plants that produce yields of 50%. "One bad transistor [out of nearly a million per screen] means you've got a pixel that puts up a black dot," notes Thomas Mills, marketing manager at Motif, Inc., a new producer of a rival active-addressing screen in Wilsonville, Ore. Active addressing is more closely related to passive-matrix LCDs with lower fabrication costs, but the screens update rapidly through pulses controlled by silicon integrated circuits rather than serve as a massive integrated circuit. Active addressing is fast enough to allow LCDs to display video.

Small U.S. firms like Photonics, Standish Industries, Planar and an experimental unit at Xerox PARC are coming up with technologies for flat panels or improving on the passive-matrix approach.

Passive matrix can be infused with full color and is good for text and other static displays. But as the mouse moves, the cursor tends to disappear, or "submarine," on the screen, reappearing in its new position after the slow-to-refresh liquid crystals catch up to it.

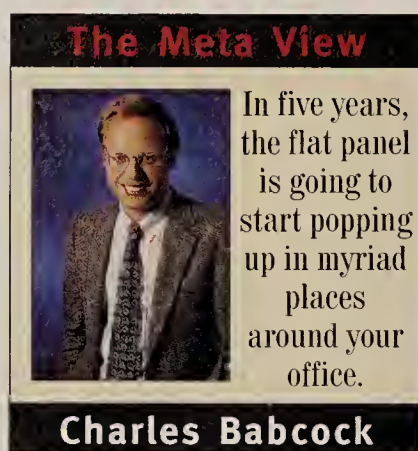
Three years ago, passive LCDs took 300 milliseconds to update each pixel. Today that refresh rate is down to 120 or 150 milliseconds and "improving constantly," notes David Mentley, director of display industry research at Stanford Resources in San Jose, Calif.

Plasma displays that scale up to larger screens from firms like Tektronix in Beaverton, Ore., "are also coming along quite nicely," although they haven't reached resolutions suitable for computer screens yet, Mentley says. Photonics makes "a great 30-in. display," he notes.

Optical Imaging Systems in Northville, Mich., one of the early beneficiaries of the government's flat-panel largesse, is the only U.S. manufacturer of active-matrix displays. Executive Vice President Charles Wilson realizes there's competition coming from other technologies but said his firm has an advantage in manufacturing savvy.

"Our technical people have told me Xerox has made one of the most beautiful flat screens they have ever seen," Wilson says. "Now all they have to do is make more than one."

The Clinton initiative is going to spur the R&D efforts of those willing to bring production facilities on-line, and in five years the flat panel is going to start popping up in myriad places around your office.



Babcock is *Computerworld's* technical editor. His MCI Mail address is 575-2737.

# ThinkPads, PS/2s on way

New laptop, desktop products should ease supply backlog

By Michael Fitzgerald and Jaikumar Vijayan

■ **IBM PC Co. is readying a broad line of product releases in the next month, some of which should begin to answer the questions plaguing its server, ThinkPad and PS/2 lines.**

Already under fire for widespread availability problems, the PC Co. will kick off tomorrow a series of laptop and desktop product releases. The announcements will include the following:

● **May 17:** A new family of ThinkPads, including Models 755, 360 and the pen-based 730T. The ThinkPad 360 will include the smallest active-matrix color screen that IBM has ever featured. This may ease IBM's supply problems with the ThinkPad, caused largely by the alluring but hard-to-make 10.4-in., active-matrix color screen.

● **May 17:** The ValuePoint Performance series, which will top out with an Intel Corp. 50/100-MHz DX4-based system. This is a significant step forward for IBM's midlevel corporate desktop. It will feature both VL and Peripheral Component Interconnect local bus support.

● **May 23:** IBM's first Extended Industry Standard Architecture bus product, a low-end server.

● **Mid- to late June:** The arrival in the Western hemisphere of the long-delayed PS/2 Models 76 and 77. The delay was caused by a glitch with the BIC 32 controller, a specialized chip that will boost system performance. These will debut in Europe this week, sources said.

Some users were enthusiastic about the products, particularly those that could reduce IBM's product backlogs. The ThinkPad 360 line, for instance, will nearly match today's ThinkPad 750 line in performance but will showcase the 360C, which has an 8½-in. screen that is in much greater supply than the 10.4-in. screen IBM currently uses.

Michael Radigan, manager of Xerox Corp.'s

Nova sales force automation project, said IBM is one of several suppliers Xerox is considering for a 1,500-unit order. He prefers the larger color screens on the ThinkPad 750 line, but "if we can get more units around the country, we'll [go with a smaller screen]; availability is a problem with IBM."

Indeed, IBM was expected to also release the ThinkPad 510, a follow-on to its ThinkPad 500, but it will not be announced tomorrow because of potential supply issues. IBM's long-term supply problems are severe, and users are openly skeptical about even solid new products.

"They sound good, but can they supply them?" asked David Pinkard, senior network

## On the launching pad

IBM's new ThinkPads will shore up its weak midrange line and top out its industry-leading ThinkPad 750 line

PORTABLES			
	THINKPAD 755	THINKPAD 360	THINKPAD 730T
PROCESSOR	25/50-MHz DX2 25/75-MHz DX4	33-MHz 486SX	33-MHz 486SX
DISPLAY	Active-matrix, color Passive-matrix, color	Monochrome Pen-capable Active-matrix, color Passive-matrix, color	Monochrome Pen only
WEIGHT	6.4 lbs. (active) 6.2 lbs. (passive)	5.3 lbs. to 6.0 lbs.	3.5 lbs.
MAXIMUM STORAGE	540M bytes	340M bytes	Up to PCMCIA maximum

technical specialist at Mallinckrodt Medical, Inc. in St. Louis. Mallinckrodt uses a variety of IBM PCs and has been one of the more outspoken shops on the topic of IBM's product availability.

Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif., said IBM's supply problems highlight a trend in the market. Brown said managing inventory is becoming the single most important task for PC manufacturers.

"IBM doesn't have a shortage problem, it has an inventory problem. It has too much of the wrong things and not enough of the right things," Brown said. "This stuff is like fruit: It rots."

## They come and they go

**M**ichael Coleman, IBM PC Co.'s servermeister, needs a program to remember his boss' name.

Three weeks ago, it was now-departed PC Co. President Robert Corrigan. Two weeks ago, it was IBM Senior Vice President Richard Thoman. And last week, he got William Filip, IBM vice president and general manager of the Advanced Workstation Division, home of the RS/6000.

Coleman, who is general

manager of the PC Server Division, had his unit moved to Filip's division last week as part of an internal restructuring, apparently separate from the one Corrigan's departure spurred. According to an internal memo circulated May 9 that announced the restructuring, it should "eliminate duplicate" design and development efforts.

The move could also be aimed at sparking PC Co.'s server strategy, which has stagnated in the last few

months as new products have stayed on the drawing board.

The memo specifically cited PowerPC development efforts for the PC server unit, as well as continued development around Intel Corp.'s architecture. An ability to support both processors in the same basic box design is an expected feature of future products.

In a separate move, Anthony E. Santelli, president of the PC Co. Products unit, moved to the PowerPersonal unit to spearhead its product development efforts.

— *Michael Fitzgerald and Jaikumar Vijayan*



# IBM gets its DB2 family act together

By Kim S. Nash  
SAN DIEGO

IBM will get its family of DB2 databases — on OS/2, AIX and MVS — “more in synch with each other” starting with next week’s debut of database upgrades, an IBM official said last week.

Speaking at the International DB2 Users Group (IDUG) here, Steve Mills, general manager of IBM’s Software Solutions Division, said Release 2.0 of DB2/2 and DB2/6000 are expected to ship late this year.

But IBM also dangled tidbits of a larger announcement planned for next week about upgrades to its DB2 family of OS/2, Unix and MVS databases during the IDUG meeting. Several DB2 users were

happy to hear that, but some skeptics wondered whether IBM will make the coherence happen quickly enough to compete effectively against Oracle Corp., Sybase, Inc. and other database providers.

“I don’t believe IBM is first

in decision-makers’ minds when they think ‘client/server,’” said Freddy Hansen, who is slated to be IDUG president in 1995. He is the database administration chief at Kommunedata in Denmark.

## Smoothing things over

Nevertheless, IBM aims to snatch business from Oracle, Sybase and others with its debut this month of both Release 2.0 of DB2/2 for OS/2 and DB2/6000 for IBM’s AIX operating system. The upgrades are intended to smooth differences between each version and the mainframe version, DB2/MVS.

Playing catch-up with more established client/server databases, along with the existing disparities within IBM’s product lines, has curbed DB2/6000 sales, said Rob Tholemeier, an analyst at Meta Group, Inc. in Burlingame, Calif.

Differences in SQL syntax among the junior DB2s mean users cannot easily scale applications between them, Tholemeier said. “IBM can call whatever it wants ‘DB2,’ but that doesn’t mean it is at all like what users know as DB2.”

Mills disagreed. Dissimilarities in SQL syntax are “so small [that] it’s not an issue,” he insisted.

However, Mills acknowledged that sales of DB2/6000, in particular, have not soared compared with DB2/2. Unix users want to build more complicated applications than OS/2 users, he said, which draws out the sales cycle. “I can’t pretend it’s not a more competitive space,” he said. In licenses sold in 1993, the DB2 siblings were led by DB2/2 with 66,000, then DB2 for MVS with 5,493. DB2/6000 sold 100 licenses.

Proponents of workstation-level DB2 databases said they are similar enough to DB2/MVS that programmers need less retraining than if Sybase or Oracle were brought in. That can save money, said Charles Golson, IDUG’s president-elect.

Part of IBM’s problem now is that Oracle and Sybase SQL Server boast more features than do DB2/2 and DB2/6000. Al-

though some of IBM’s shortcomings are expected to be addressed in the June releases, holes remain.

For example, unlike Sybase and Oracle, IBM offers no gateways to link the smaller DB2s to rival databases or to nonrelational mainframe products, including its own VSAM and IMS.

Bill Wong, a database brand manager

at IBM, promised such access but declined to specify when.

Other Release 2.0 enhancements include the following:

- Support in DB2/2 for Open Database Connectivity standards, which DB2/6000 already supports.
- Support for binary large objects in both products, a first step in adding object orientation to IBM databases.
- New query optimizers in DB2/2 and DB2/6000, dubbed Starburst.

## IDUG chuckles

One user at IDUG jabbed IBM with this joke: What’s the difference between IBM and Jurassic Park? One is a huge island of ancient mechanical monsters that scare people. The other is a movie.

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# PowerBooks long on style, short on speed

By Mark Halper  
CUPERTINO, CALIF.

Apple Computer, Inc. today will unveil its next generation of notebook and sub-notebook computers. While the machines will not set speed records, users applauded them for their longer battery life and improved styling, cursor control

and networking.

The introduction comes none too soon for Apple, which last year fell from the leading worldwide supplier of portables to No. 3, behind Compaq Computer Corp. and Toshiba Corp., according to a new report from Dataquest, Inc. in San Jose, Calif.

Apple said users will have to wait an-

other year for Apple portables based on the PowerPC chip, which drives the company's new Power Macintosh desktop line. But the vendor noted that the new Motorola, Inc. 68LC040-based machines far outperform the aging 68030 PowerBook models.

Charlie Tritschler, PowerBook product manager, said the four new notebook



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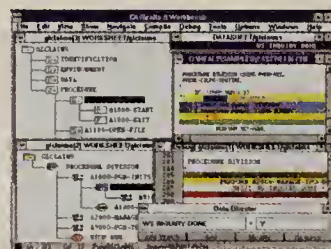
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### One from the tree



#### POWERBOOK Duo 280C (SUBNOTEBOOK)

Processor	68LC040 at 66/33 MHz
Memory	4M bytes, expandable to 40M bytes
Hard disk	320M bytes (internal)
Display	8.4-in. backlit active-matrix color
Weight	4.8 lbs

versions — PowerBook 520, 520C (color), 540 and 540C — operate 60% to 80% faster than their predecessor Model 100s, based on Apple tests running Microsoft Corp.'s Excel and Word programs. The subnotebooks, PowerBook Duo 280 and 280C, double the performance of their predecessors, he said.

### Waiting impatiently

Yet users did not pay much attention to speed. After all, there are Intel Corp.-based portables on the market that are faster than the new PowerBooks, said Dataquest analyst Kimball Brown. And users are disappointed about having to wait until next year for PowerPC-based notebooks, he added.

"We're buying PowerPC Macintoshes [for desktop use], so to have to go back to the 68040 is a big letdown," said Michael Keithley, informations systems director at Creative Artists Agency, a Beverly Hills, Calif., talent agency.

But Brown, Keithley and other analysts and users credited Apple with sleek styling, including rounded edges, durable plastic and, on the notebooks, a touch pad in place of a trackball for cursor control.

### Winning features

The machines also feature, for the first time on Apple portables, built-in Ethernet and stereo sound. In July, Apple will add support for PCMCIA storage devices.

Keithley added that the built-in Ethernet should eliminate the corruption problems that add-on Ethernet adapters have caused for his PowerBook SCSI drivers.

He also applauded the touch pad, saying it is "more natural than having to navigate a ball," and that it should reduce maintenance. "The majority of support issues on my PowerBooks have had to do with trackballs getting dirty," Keithley said.

"From a strictly gee-whiz perspective, there's a lot of things I like about these," said Harry Wilson, network administrator at *Sports Illustrated*.

Among the features that drew Wilson's attention was support for PCMCIA cards. Wilson said he eventually plans to use PCMCIA for a cellular modem. Tritschler pointed out that PCMCIA drives will increase user security because they can be easily removed.



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## News Shorts

**IBM opens CICS to industry**

IBM is opening up its CISC transaction processing software to the rest of the computer industry, enabling it to run on a wider range of systems, the IDG News Service reported last week. This week marks the first meeting of the CICS Implementors Forum at England's IBM Hursley, where the software is developed and maintained. "We are creating an industrywide organization to take charge of the CICS API and decide how it should be developed and improved," said Steve Craggs, CICS business manager at IBM. Attending the first meeting will be representatives from **Digital Equipment Corp.**, **Hewlett-Packard Co.**, **Merrill Lynch & Co.**, **BT** and others.

**Preliminary ruling against Microsoft**

Late last week, the U.S. District Court in Los Angeles tentatively ruled in favor of a preliminary injunction for **Stac Electronics, Inc.** in its suit against **Microsoft Corp.** A final ruling is expected this week. If Stac prevails, Microsoft will be required to recall all copies of MS-DOS 6.0 and 6.2 that have the DoubleSpace compression utility. A Microsoft spokeswoman claimed there are very few copies of the product in sales channels now.

**CA secures Unicenter**

In an effort to provide mainframe-level security to distributed platforms, **Computer Associates International, Inc.** last week announced plans to provide graphical user interfaces between its CA-Unicenter/Star systems management package and IBM's RACF security product. The interface is slated to enter beta testing this summer.

**PowerMac echoes Newton**

**Apple Computer, Inc.** Chief Executive Officer Michael Spindler told analysts recently that Apple plans to model its Power Macintosh licensing program after its Newton licensing plan. Apple has tried to attract developers and licensees for all parts of Newton with efforts to license the operating system, the hardware design and various other elements of the product.

**Surfing the Internet**

James Clark, founder and former chairman of **Silicon Graphics, Inc.**, and Marc Andreessen, originator of Mosaic, have formed **Mosaic Communications Corp.** in Mountain View, Calif. Mosaic is a hypertext information system for navigating the Internet. The company said it will develop an advanced, commercial version of Mosaic and will run an Internet information server, or "cyberspace mall," to support hypermedia information distribution.

**New HP workstations expected**

HP is set to announce midrange Unix workstations this week, coinciding with the InterWorks meeting of HP workstation users in Orlando, Fla. The four new machines — three Model 715s and one Model 725 — are based on the new PA-RISC 7100 LC bi-endian chip that powers the low-end Model 712.

**SHORT TAKES** Digital is reducing prices up to 7%, effective immediately, on 26 models of its Value Line of PCs. ... Frank G. Brandenburg, who until recently had been deputy president of **Unisys Corp.**'s Computer Systems Group, was named president of the company's Client/server Systems Integrated Business Unit in San Jose, Calif. ... Citing weakened demand for its mainframe application software, **American Software, Inc.** has announced plans to reduce its staff by approximately 90 employees, or 11% of its 825 total employees.

# Alpha sales ramping up

By Mary Brandel

It's no Alpha avalanche.

But observers at Digital Equipment Corp.'s national user group meeting last week said they are seeing more interest among Digital and non-Digital customers in Alpha AXP servers — especially since the April announcement of its \$26,900 DEC 2100 server. And analysts also said Digital customers have more reason to feel comfortable about migrating.

In a recent study by International Data Corp. (IDC), 30% of 51 Digital sites said Alpha would become their primary platform by year's end. Digital says Alpha revenue is up 400%, compared with third-quarter 1993. The bad news is that European sites are "much more conservative," with only 15% of 67 Digital sites committing to Alpha this year, IDC analyst Chris Christiansen noted. Additionally, 88% of 90 non-Digital sites said they had no immediate intention of moving to Alpha.

Still, analysts and Digital Equipment Computer Users Society (DECUS) attendees pointed to the following as positive developments on the Alpha migration trail:

- OpenVMS Version 6.1 now offers full functional equivalence between the Alpha and VAX versions, with only minor exceptions. Also, OSF/1 is now up to speed with its Unix competitors.
- Customers can add an OpenVMS Alpha to a VAX-cluster to try out the technology without making a large investment.
- There is now a critical mass of key applications available for OpenVMS and OSF/1 environments.
- Until early July, customers can get a 100% return on current software when they move to Alpha.

Nonetheless, customers at DECUS spoke of obstacles that are slowing down the move.

The University of New Orleans, for example, is planning to switch out two processors on its Alpha-ready VAX for a single Alpha processor within the next 12 to 18 months, said Dan Smith, senior network analyst at the university. But first the university must

rewrite its current software, which is written in Bliss, a VMS-specific language.

"They didn't port Bliss," Smith said. "They got C running first."

Other users voiced concerns about whether and when certain VAX OpenVMS applications would be ported to Alpha. In at least two cases last week, users heard different stories from product managers and Digital executives as to what is being ported to OpenVMS.

"As a VMS user, I feel I can't take advantage" of new technologies from Digital, said one user, who uses X Window System terminals as clients, in a question-and-answer session.

He said that when he purchased a DEC 2000 server, "I expected a VMS server. What I got was a PC, and I don't appreciate it at all," referring to the system's

expectation of PCs as clients. Digital attributed his problems to "start-up pains with the new [Peripheral Component Interconnect bus] I/O structure" and said it is either resolved or being resolved.

The fact is, Digital expects 90% of Alpha migrations to be to OpenVMS, and the company worked hard last week to dispel any notion that the operating system would not be alive and kicking for years to come.

A new log-structured version of OpenVMS that will reportedly be five to 10 times faster than any existing file system is expected next year.

For the 1% to 3% of customers that Digital expects

to move from OpenVMS to OSF/1, the company has devised a "coexistence" strategy, bearing out its belief that 95% of its customers will not abandon OpenVMS in the short term.

Digital has partnered with a number of third parties to offer coexistence tools. It also said it is putting significant resources into making all of its operating systems interoperable, with Distributed Computing Environment a major part of the plan.

**Digital in race to be Top 10 PC player.** See page 43.

**Alpha interest**

A recent survey asked Digital users when, if ever, would they migrate the majority of their hardware to Alpha

PERCENTAGE OF RESPONDENTS	TIME FRAME
30%	1994
10%	1995
10%	1996
12%	1997
10%	BEYOND 1997
23%	NO IMMEDIATE INTENT
6% DON'T KNOW	
Numbers do not add up to 100% due to rounding	
Base: 51 Digital sites	

Source: International Data Corp., Framingham, Mass.

## DEC sales pilot to address concerns

Digital Equipment Corp. said it will pilot new client/server sales systems in Australia this fall, the result of a re-engineering effort to revamp its internal sales process.

In a speech to attendees of Digital's national user group meeting in New Orleans last week, Chief Executive Officer Robert Palmer attributed some of his alleged surprise about Digital's third-quarter loss to the inadequate sales systems and how they work "or, more appropriately, did not work together," he said. The result was "a cascading effect, leading to imprecise forecasts and expectations."

For example, Palmer said in a follow-up interview that Alpha shipments could have been up 100% in the third quarter if the company had met all the orders and closed deals earlier in the quarter. As it turned out, shipments were up 66%.

The news was met with some relief by attendees,

but it did not stop customers from voicing their frustration and anger with what even Palmer has called the least productive sales force in the world.

Complaints included ridiculous lead times, inaccurate quotes, lack of product information, systems shipped without key components and delayed shipments.

**Improvements needed**

"Over the last five months, it's become increasingly difficult to get delivery," one user said in a question-and-answer session. "It's a matter of improving quoting and delivery or continuing to lose business."

Palmer promised to provide more details about the pilot in the next couple of months. The re-engineering, Palmer said, will also make it possible for Digital to reduce its head count. "The people in the middle, the mushy stuff, will be gone." —Mary Brandel



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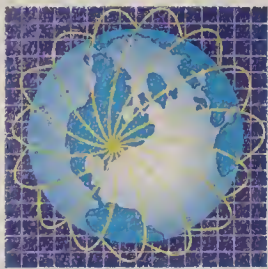
sites, in 50 countries.

The Trade Point Programme will set up connections via telecommunications links, the Internet and, in some cases, wireless satellite networks. Companies will be able to search for and then compete in new markets, as well as locate source components and raw materials, said Randall Wise, president and executive director of the North American Trade Point (NATP) in Columbus, Ohio.

"It changes the way economic development can be done," said Edward M. Roche, author of *Managing Information Technology in Multinational Corporations*. "It means that companies can get their stuff out there much faster and cheaper than their competitors. The old, tired and corrupt networks, many of which were supported by the previously existing colonial connections, are getting bypassed by this new type of system."

Additionally, the network aims to use electronic data interchange to speed up clearance and reduce

the paperwork involved in conducting international trade. For instance, the U.N. estimates that international trade paperwork costs \$300 billion per year. The project's goal is to reduce that amount by 25% by the year 2000, Wise said.



Although the Trade Point Programme is officially in its pilot stage until October, roughly 39 countries already have their trade points operating using existing computer and telecommunications technologies (see story at right). In the U.S., the NATP is managing projects for the U.S. Department of Commerce, the state of Ohio and The Limited, Inc., Wise said.

The program is expected to reach 80% to 90% of the 185 U.N. members by the end of 1995, said Bryan Baske, a technical adviser on loan to the project from Digital.

#### Even playing field

Another benefit of the global network program is the possibility it could ease the technical hassles of trading with partners in countries with less-developed telecommunications infrastructures. In those countries, the trade point will serve as a "Kinko's Copies" of electronic commerce, said David

Hough, an IBM executive on loan as a technical director to the NATP, referring to where trading partners can go to conduct business.

Along with a solid telecommunications link, many trade points will have custom officials on site to expedite administrative procedures, Hough said.

Technology users liked the idea.

"It would be an advantage to doing business in Third World countries," said Reuben Lantto, director of international telecommunications at Cargill, Inc., an agribusiness company in Minneapolis.

While the U.N. is sponsoring the federation, funding for the individual trade points is coming largely from the private sector. For instance, the NATP is supported by Digital, IBM, AT&T Corp., Arthur Andersen & Co. and Andersen Consulting.

Additional funding will likely come from the public sector. User fees are charged on a sliding scale depending on company size and amount of data posted, Wise said.

One unanswered question with the network is how secure transactions will be. But firms now conduct business over the public telephone network, so experts said security issues will not deter commodity trading relationships.

**EDI cures ills** of hospital supply procurement. See page 63.

## Around the world

The announcement of UNCTAD's Trade Point Programme will be a key event at the World Symposium on Trade Efficiency slated for Oct. 17-21 in Columbus, Ohio. United Nations Secretary General Boutros Boutros-Ghali and U.S. Secretary of Commerce Ron Brown are scheduled to preside at the symposium.

Analysts likened the Trade Point Programme to a global version of President Clinton's National Information Infrastructure initiative (see related story below) and individual commercial efforts such as CommerceNet in California [CW, May 9].

Components of the trade point system include the existing global Internet and the World Wide Web, a free client/server hypertext system that runs over the Internet.

Users on "the Web," which was developed at the CERN research center in Switzerland, can transparently access documents on servers throughout the world by pointing and clicking. The documents can contain links to documents on other servers that users can access in the same way.

Another critical component is Mosaic, a client application for the Web distributed free by the University of Illinois. The software, which runs on Windows, Macintosh and X Window Systems computers, enables the links to text, images, sound and video files.

Services provided by the trade points will include EDI, trade lead databases, product catalogs and directory services. Also, certain trade points will be connected by videoconferencing links to allow those trading to see one another during electronic meetings.

—Lynda Radosevich

## Feds eye electronic purchasing power

By Gary H. Anthes

ARLINGTON, VA.

Driven by a mandate from the White House, the federal government is on the road to electronic commerce, developing a vast interconnected system that will facilitate the annual procurement of some \$25 billion in goods and services.

A 50-person interagency task force has just completed a draft blueprint for the electronic data interchange (EDI) project, laying out an ambitious schedule intended to have most government purchases performed electronically within three years. The plan calls for federal agencies to have the first basic capabilities in place by September.

Because some agencies have no automated procurement support, while others have systems of widely varying kinds, the approach outlined by the federal Electronic Commerce Acquisition Team (ECAT) allows each agency to find its own solution internally.

Meanwhile, the team is defining the technological glue — standards and interface specifications — for tying the systems together and presenting them in a unified way to the vendor community.

"There is no cookbook approach," said F. Dean Erwin, co-chairman of the presidentially chartered ECAT and director of defense information for materiel and logistics at the U.S. Department of Defense. "We are trying to take away the excuses."

"We want to improve relations with the vendor communi-



**DOD's F. Dean Erwin:**  
*'There is no cookbook approach'*

### Small potatoes

The government's electronic commerce systems initially will handle small purchases, now defined as those under \$25,000. In fiscal year 1992, 98%, or 19.6 million, of all government buys were small purchases.

G. Martin Wagner, co-chairman of the ECAT and deputy commissioner for information resources management at the GSA, said three types of agency procurement systems will emerge: Custom systems at some agencies will be modified and expanded; some agencies will buy commercial, off-the-shelf procurement software; and others will adapt and extend software such as Lotus Development Corp.'s Notes to handle procurement activities.

EDI projects at agencies such as the VA are already well under way. The VA handles 2,000 to 3,000 small purchases a month from 25 vendors through its mainframe system in Austin, Texas. Eventually some 250 vendors — out of 189,000 VA suppliers — will be on the system, enough to account for most of the agency's small purchases, according to VA IS manager Edward Kinney.

—Gary H. Anthes

ty, increase competition and improve quality of service," said Edward Kinney, director of information systems policy at the Office of Acquisition and Materiel at the U.S. Department of Veterans Affairs. He said the VA also hopes to lower costs by using EDI to enable just-in-time inventory policies.

Key elements of the architecture include the following:

- A single means of supplier registration, a single supplier database and a standard agreement form detailing the rules of the electronic road.
- Use of the ASC X12 ANSI-standard EDI transaction formats. The government will eventually migrate to the United Nations EDI for Administration, Commerce and Transport standard (see story above).
- Development of gateways, using a commercial software package, to translate "flat-file" transactions in agency systems to the ASC X12 format.
- An interagency "virtual network" connecting to commercial wide-area networks. It will consist of a combination of existing agency networks, the governmentwide FTS 2000 networks and the Internet.
- Use of electronic funds transfers as the principle means of payment.

The ECAT report said EDI security is also a concern, and it outlined measures intended to ensure confidentiality, data integrity, originator authentication and nonrepudiation. Security measures will include passwords, trusted operating systems, hash totals, digital signatures and the government's key-escrowed encryption standard, the ECAT said.

Cost estimates for government electronic purchasing have not yet been developed, Erwin said. However, he said the defense department has earmarked \$16 million for the effort this year.

G. Martin Wagner, co-chairman of the ECAT and deputy commissioner of information resources management at the U.S. General Services Administration (GSA), called funding "a major concern," but said, "The money will come from some place." He said some agencies may have to defer other activities in order to meet the administration's timetable.



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# Enterprise push to cut server costs

By Elisabeth Horwitt

Virtually all of the major PC-based server software vendors are in the throes of re-architecting their pricing these days. The move comes amid pressure from corporate users who are moving from server-based to enterprisewide distributed computing installations.

Vendors, value-added resellers and users contacted last week all agreed that current pricing models are overdue for an overhaul. But they added that a revamp will be neither easy to come up with nor simple to implement. Finding a model that is fair to all sides is also a challenge.

Vendors are trying out a number of license structures: concurrent usage licensing, which bases charges on the number of users who can simultaneously access a given server; site licensing, which charges a set fee for unlimited usage for one site; and tiered server licensing, used by IBM for its LAN server products, which bases costs on a server's CPU capacity.

None of the above options is perfect, users said. "We were always pushing [Novell, Inc.] for site licenses, but it was cost-prohibitive the way they priced it," said Wayne Lemmerhirt, manager of network services at Boston Edison Co.

## License lineup

Concurrent usage licensing, currently the most common model, works well enough in a departmental setup, where a comparatively stable group of users accesses one or two servers. However, it is far too rigid for an enterprise configuration, where users may access any number of servers throughout the company on an occasional basis, user and vendor sources said.

Boston Edison, as one of Novell's 100 or so Master License Agreement (MLA) customers, enjoys a special arrangement called seat-based licensing. It pays a set fee based on the total number of workstations that access NetWare resources anywhere in the organization, Lemmerhirt said.

The arrangement offers significant price breaks over ordinary concurrent user li-

censing, he added. "Companies without MLA licensing that have 10 servers and 500 users end up paying for 10 times 500 users," he said.

However, neither of these license models tailors pricing according to how often, or how long, a given user accesses network resources.

"Vendors try to be very specific about the number of users per server because that is the only [server software] cost measurement we have today," said John Murphy, director of information technology at Texaco, Inc.

However, this type of model "eliminates

### Cash, check or charge?

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- **USAGE-BASED LICENSE**  
Depends on frequency and length of time a given application or service is accessed.

the flexibility we'd like to have" in terms of matching software costs more closely to actual usage levels, Murphy said.

Both Novell and Banyan Systems, Inc. said they are considering a combination of seat-based licensing and usage-based licensing, which would measure actual usage of applications and services by different users and charge accordingly.

"When you move from NetWare 3.x to 4.x, you have to have a way to charge per seat and per services consumed, not by server," said Kanwal Rekhi, Novell's chief technology officer.

The question is how soon the vendors can realistically implement such a hybrid model. Rekhi said Novell needs plenty of time to get customer feedback before it decides. Banyan recently told customers that its enterprise pricing strategy is years away. In the meantime, Banyan has irked many users by replacing its former unlimited enterprise license model with a concurrent usage-based pricing structure [CW, April 18].

A major obstacle to usage-based licensing is the lack of tools for measuring such usage, users and vendors agreed. What is needed are tools that now exist on the mainframe for measuring things such as frequency and duration of application usage and number of CPU cycles, Murphy said.

## Demand for improved tools

Users, meanwhile, said they want better metering tools to get a handle on usage levels for their bookkeeping. Boston Edison, for example, is puzzling over how to set up a chargeback system for the Novell NetWare 4.0 installation it shortly plans to roll out, Lemmerhirt said.

"I'm afraid that we may have to monitor every bit and byte that somebody transmits," Lemmerhirt said. While application software and third-party systems management vendors are partially addressing the problem, Lemmerhirt said he hopes to see from Novell "something like an [NetWare Directory Service]-based counter" that would track each user's request for access to an application or service across the enterprise.

Microsoft Corp., meanwhile, continues to charge primarily for its client software and offer network services, such as electronic messaging, either free or at very low cost. However, the vendor recognizes that as its Windows NT platform moves to a more enterprise-based architecture, through offerings such as Cairo, "we will have to change [licensing schemes] as the rest of the industry is changing," said Richard Tong, a general manager of the company's business systems division.

## Microsoft, Candle eye object deal

By Melinda-Carol Ballou

Managing multiple objects across an enterprise of mixed platforms and networking protocols could one day be critical to the success of emerging object operating systems, industry analysts and developers agree.

With that issue in mind, Microsoft Corp. is checking out options from a number of companies — including a pending deal with Candle Corp. to jointly create interoperability technology for disparate object standards. The agreement is expected to be announced this summer, sources from both companies confirmed last week. Products supporting the effort are expected to ship before year's end.

Candle and Microsoft are working to create interoperability between Microsoft's Object Linking and Embedding and the Object Management Group's Common Object Request Broker Architecture, the sources said (see story page 85).

Perhaps more significantly, Candle is testing an object infrastructure with its systems management tools. This infrastructure will provide a framework for managing multiple objects across a network of mixed platforms, which Microsoft is also checking out for possible use with Cairo, sources said.

Corporate developers said this kind of intermingling of object-oriented techniques with systems management could provide invaluable help. "I expect object-oriented standards and techniques will provide a number of benefits when combined with systems management," said Paul Blaney, a vice president at Bankers Trust Co. in New York.

## Full price

CONTINUED FROM PAGE 1

about a 20%, sometimes 30%, lower cost of software," said Deems Davis, vice president of IS at Fireman's Fund Insurance Co. in San Rafael, Calif.

Another factor driving software costs down is the movement toward CD-ROM-based distribution of software.

While a standardized licensing control paradigm is far off [CW, April 18], vendors are doing everything in their power to get users to electronically distribute software at their sites. Now, the ability to push software over the wire is about to be extended from LANs to global wide-area networks.

Two of the biggest corporate software providers, Corporate Software in Canton, Mass., and Software Spectrum in

Garland, Texas, are joining with Infonet Services Corp. to distribute software electronically on a global basis by year's end. The service will use Microsoft's long-awaited Hermes distributed systems management technology. Pricing has not been determined.

"It's so much more cost-effective without the boxes and documentation," explained Jerry Labie, vice president of national accounts at Corporate Software. "It makes more sense economically and technically for both the software manufacturer and the user to take advantage of CD-ROM. Shrink-wrapped software is the old paradigm."

Labie said CD-ROM-based software distribution eliminates much of the hard costs in software manufacturing. For example, the software has to be printed on only one medium instead of multiple ones. It often requires a limited amount of documentation, instead of needing a

box, documentation and wrapping. It also reduces shipping costs.

## Less time to install

Moreover, industry observers noted that electronic software distribution on networks is drastically reducing software installation time.

For example, Fireman's Fund Insurance uses an automated software distribution tool that it built in-house to install software across the network. As a result, its administrators can install software in one-tenth the time it took when an administrator loaded software from the console, Davis said.

While users acknowledge license cost savings, some say vendors are distributing software faster than they can control it. A recent Gartner Group, Inc. study indicates that corporate sites on average have 10% to 20% more software than they need. Maintenance, support and installa-

tion requirements now make up 75% of PC software costs, according to Gartner.

"A lot of the manufacturers have awakened to the idea that licensing options can be a marketing tool," said Ki Wilson, a microcomputer specialist at Stone Container Corp. in Chicago. "But it just adds to the confusion and complexities of licensing."

Davis said LAN-based licensing is not a panacea for Fireman's Fund Insurance. "We have 7,500 PCs and workstations at this company," he said. "Only 3,000 of them are connected to LANs. As you can see, it does not cover all the bases."

Also, users will have to warm up to CD-ROM technology to take full advantage of electronic delivery. Today, there are fewer CD-ROMs in the hands of corporations worldwide than in the hands of home users, according to data from International Data Corp. in Framingham, Mass.



## Migration

CONTINUED FROM PAGE 1

client/server conversion, observers said.

What is more, users can get hammered by unexpected costs because unanticipated glitches are a way of life in client/server migrations.

Yet while information systems managers agreed that client/server migration costs can spiral out of control, there are techniques to combat this problem.

### Small scope, small fees

The corporate headquarters division of United Technologies Corp., for example, recently installed financial software from SQL Financials, Inc. The company paid an hourly rate for associated service fees, but they were minimal because the division kept the project small, said Bill Johnston, director of financial systems development.

To manage costs, Ron Shelby, a second vice president in charge of information and technology services in the enterprise services division at Connecticut Mutual Life Insurance Co. in Hartford, Conn., said his company has been training employees to serve as in-house experts on client/server projects. The company contracts with outside programmers for more straightforward tasks, which cost anywhere from \$40 to \$90 per hour, Shelby said.

### Who will pay?

For their part, software companies cannot simply hand out client/server expertise for free, observers said.

"The question is, whose responsibility is it to cover the costs of migration?" asked Thomas Willmott, a vice president at Aberdeen Group, a consultancy in Boston. "I can understand why a customer doesn't want to embark on a project that is totally open-ended, but the supplier has to protect itself, too."

For D&B Software, the plan to embed the Smartpath client/server migration program into professional services an-

gered several customers who said the company should provide at least some free assistance to help them migrate.

Smartpath includes a data extraction tool that will pull out host application data, convert it and load it into the Smartstream environment. But based on initial plans, the vendor will charge customers a usage fee of up to \$25,000 per application instead of licensing the tool outright. For the Financial Stream set of four applications, it could cost \$100,000 just to

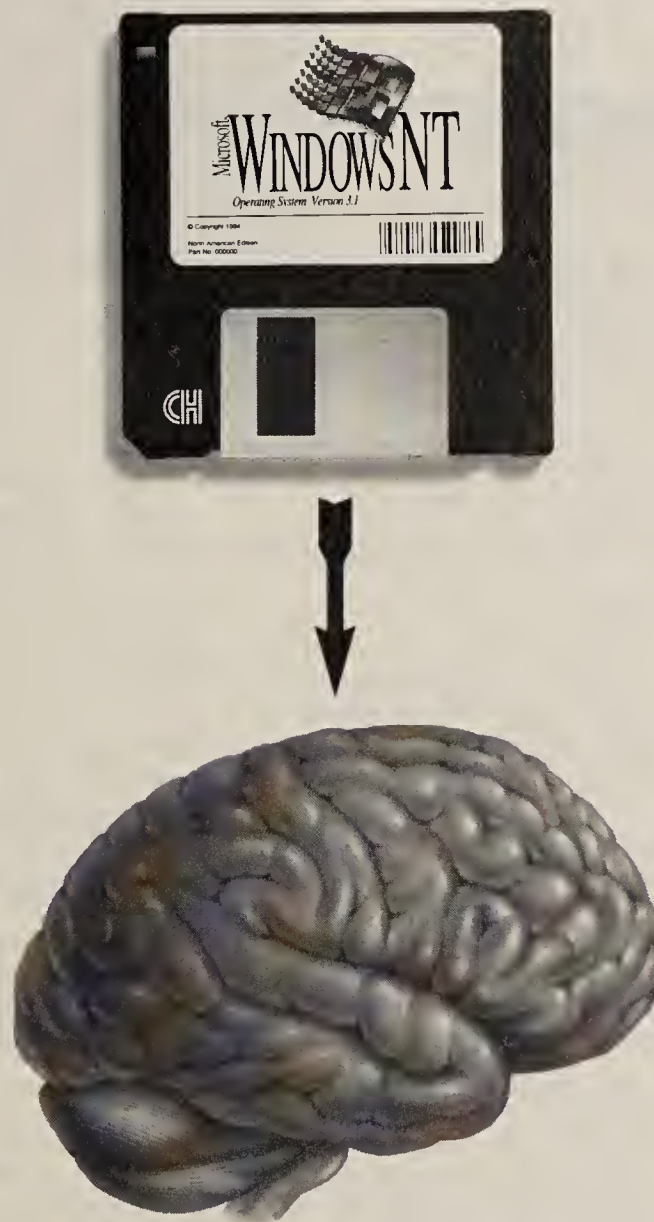
get the data onto the new platform.

Given the response to Smartpath, D&B Software officials said they had not actually reached a decision on how the service would be priced. A spokesman said the company would evaluate several options, including fixed pricing.

Other software providers are struggling with this issue, and some have opted for the fixed-price approach. Dennis Vohs, president of Ross Systems, Inc., last week said his company has estab-

lished a "guaranteed price" plan for users migrating to its client/server human resources software. Ross negotiates a price up front that includes software, migration assistance and training.

Cincom Systems, Inc. and SAP America, Inc. also offer fixed-price options. Cincom began a program earlier this year to convert old VSAM code to SQL code for a client/server environment. It offers the services at a fixed price, ranging from \$50,000 to \$100,000.



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### Smart parts

D&B Software's Smartpath has four components, which should be generally available at year's end. The components are the following:

- On-line knowledge bases, which are enterprise models that can be used as the blueprint for a client/server environment.
- A data extraction tool from Evolutionary Technologies, Inc. that will move data to the new platform.
- A client/server warehouse capability to store report information from the host and Smartstream systems for end-user access.
- An implementation methodology, which is a set of techniques delivered as part of Lotus Development Corp.'s Notes databases.



# IBM bets big on Smalltalk

By Craig Stedman

**In an effort to give users an easier entry into object-oriented programming, IBM plans to implement the Smalltalk language across all of its systems by the end of next year. Included will be a revamp of the Smalltalk-based Envy/400 product released last year for the AS/400, IBM executives said in interviews last week.**

The Smalltalk plans will be formally disclosed next week at the DB/Expo conference as part of IBM's introduction of a new product set for client/server application development. The Application Productivity Family replaces the failed AD/Cycle, which was mainframe-oriented.

IBM will also make C++ available on the AS/400 and MVS mainframes in 1995, and plans for an Object Cobol offering are due to be announced in the fall, executives said. But they described Smalltalk as a more user-friendly vehicle for getting into object programming, and customers agreed.

"A lot of people dabble in C++, but it's not exactly an easy thing to grasp," said Paul Maszczak, corporate director of data processing operations at C. R. Bard, Inc. in Murray Hills, N.J.

Smalltalk is easier to use and should make programmers more productive, he added.

Maszczak said C. R. Bard wants to start programming with objects and would strongly consider IBM's Smalltalk offering for its mixed environment of mainframes and AS/400s. "If they get anything cross-platform like that, we're listening with big ears," he said.

Scott Plumer, technical support project manager at Gannett Co.'s data center in Silver Spring, Md., also said Smalltalk is more appeal-

C++ for adding objects to existing code. "It's quite easy to wrap applications in Smalltalk and use it as an integration vehicle," he said.

IBM Smalltalk, based on code from Object Technology International, Inc. in Ottawa, will ship next month for OS/2 and move to other platforms later (see chart), said John Swainson, director of application development marketing at IBM. The product includes a Smalltalk compiler plus an integrated debugger and editor.

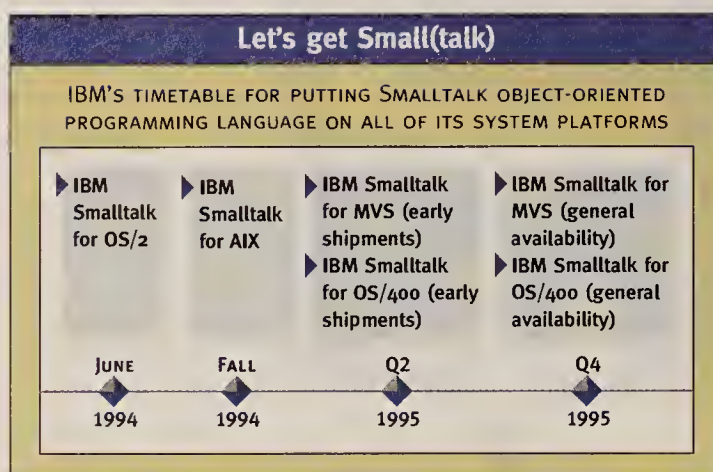
Envy/400 will be replaced by IBM

Smalltalk to standardize the offering across the company's hardware lines, Swainson said. The change will require the 300 or so Envy/400 users to switch compilers, but Swainson said IBM plans to provide migration tools.

VisualAge, a Smalltalk-based visual development tool released on OS/2 in April, will also be implement-

ed on IBM's other systems, starting with AIX in the fall and the AS/400 early next year, Swainson added.

The Application Productivity Family also includes a VisualGen code generator, a LAN code library, a data dictionary and data model, with Object Design, Inc.'s Object Store database as a repository, IBM officials said. The PC-based tool set is getting much better reviews than AD/Cycle.



ing than C++.

"Most people are discipline slob and if you give them C++, you'll end up with something that looks like assembler spaghetti," Plumer said. "Smalltalk at least provides some structure. You can get into much less trouble with it than you can with C++."

Chet Geschickter, director of research at Hurwitz Consulting Group, Inc. in Newton, Mass., said Smalltalk is better suited than

make up 60% of its revenue.

Wall Street estimates of Borland's pending loss for the fourth quarter, ended March 31, could be as high as \$36 million. In the last week, some brokerage firms, such as Dean Witter Reynolds, sharply raised their prediction of Borland's expected fourth-quarter loss based on new information about Borland. Some loss estimates for Borland were as high as \$1 per share for the fiscal year.

"They have no new products, Quattro Pro sales have dried up since the Novell deal was announced, and they have a ton of inventory in the dealer channel," said Timothy McCollum, a financial analyst at Dean Witter. "So they are going to lose a ton of money."

## Backpedaling

McCollum estimated that Borland would post just over \$60 million in revenue for the quarter, more than a 40% drop from the \$117 million posted for the same quarter last

year.

Borland officials originally said they would announce the company's earnings on May 2 but pushed the reports back to May 5. After its stock dropped when Borland backpedaled from the May 12 date, the company formally announced it would report on June 2.

A Borland spokesman cited accounting complexities as the reason for the delays, but Wall Street analysts were unconvinced. Borland's expected losses have severely strained its finances and may have placed the company technically in default on the revolving credit loan it signed with bankers last summer. A Borland spokesman could not confirm if the company was in default but said it was communicating with the banks on a daily basis.

The Borland spokesman said the company fully expects to be profitable in the second quarter of this fiscal year. However, analysts remain quite wary about the company's fortunes.

# Router software allocates bandwidth

By Stephen P. Klett Jr.

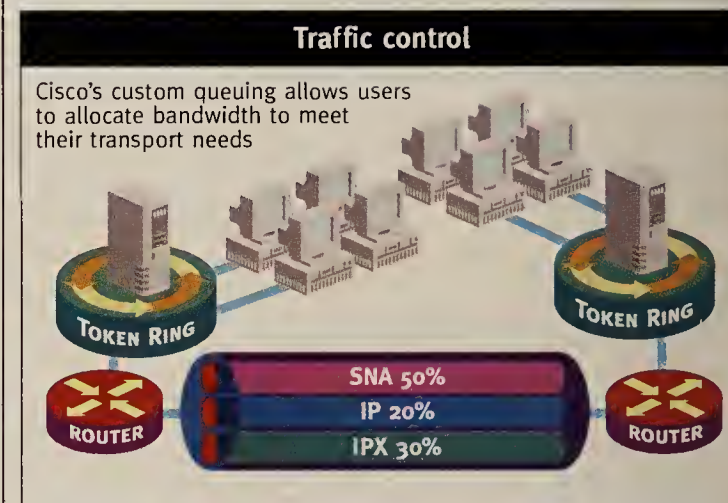
Cisco Systems, Inc. today will unveil software designed to ease the daunting task of meshing SNA and LAN traffic in router-based internetworks.

Cisco's "custom queuing" merges prioritization and bandwidth reservation capabilities to provide predictable performance and response times for the delivery of all network protocols.

Until now, network administrators have used a process called priority output queuing to assign priority to SNA data bandwidth, which could leave other protocols such as IP and IPX out in the cold. For example, a company's SNA-based data could use up to 100% of network bandwidth at a given time, bringing the response-time for IP data down to zero, Cisco said.

## Getting the leftovers

Custom queuing is aimed at eliminating this need for compromise by allowing users to set minimum bandwidth requirements for the various protocols on their networks (see chart). If SNA is allocated 50% of the bandwidth and uses only 30%, other protocols can use leftover bandwidth until it is required by SNA, Cisco said.



Analysts said custom queuing was needed because current router technology does not handle mission-critical SNA traffic well.

Jon Castle, message engineer at Commonwealth Edison in Chicago, which is evaluating ways to move SNA traffic across its roughly 70 Cisco routers, agreed.

"This could definitely be useful for sites with low bandwidth but a lot of SNA traffic. It sounds like it could solve a lot of our problems," Castle said. For example, he said bandwidth reservation could be ideal when a large burst of TCP/IP traffic and a lot of SNA traffic need to go down the same pipe.

Still, some observers voiced concern that Cisco's custom queuing could create confusion in light of alternative methods of SNA transport such as frame relay and forthcoming router products based on IBM's Advanced Peer-to-Peer Networking and Data Link Switching (DLSw). In addition, Proteon, Inc. offers a similar method of bandwidth reservation.

"Custom queuing goes above and beyond what DLSw provides because DLSw does not offer a scheme for data prioritization," said Michael Zadikian, SNA product marketing manager at Cisco in San Jose, Calif. Zadikian added that Cisco may push for custom queuing to be incorporated into the DLSw standard, which is due by the end of the year.

"Custom queuing is a good thing for users because it is yet another choice for keeping their SNA solution alive — and yet it can be a bad thing because it gives users yet another choice," said Glenn Gabriel Ben-Yosef, an analyst at The Yankee Group in Boston. "I think it's good because Cisco is really listening to what its big customers want," he added.

Custom queuing will be available next month and will be included with Cisco's basic router software.

# Borland

CONTINUED FROM PAGE 1

"The biggest concern to a corporate customer is, 'What is going to be my situation three, four, five years from now?'" said Tom Button, group product manager for MIS development at Microsoft Corp.

## Jumping ship

Just weeks ago, the Soundview Financial Group surveyed Gartner Group, Inc. clients, Fortune 1,000 companies, on their plans to upgrade to Borland's dBase for Windows and Paradox databases. The study found that while 45% of the companies had purchased Borland databases in 1993, only 34% would do so this year and just 29% planned to in 1995.

This is particularly bad news for Borland. While their language tools are credited as solid products, database sales currently



# Borland focuses on helping customers upsize to client/server

**We've heard recently about changes at Borland. How will these changes affect customers?**

**Philippe:** Customers will be better served. Borland has re-engineered the way it does business in a way that is in tune with the changing needs of software users. Corporations understand that the next leap forward in worker productivity will come from networked applications in a client/server environment. That's what Borland's upsizing, client/server strategy is all about. And now we at Borland are 100% focused on helping customers evolve and upsize their applications into this new environment.

**The whole software industry is consolidating and trimming down in size. Why?**

**Philippe:** The software industry is indeed changing. The PC software industry is evolving into three types of companies: large, multi-billion dollar horizontal software firms, medium-size specialized companies, and small boutique companies. With the recent restructuring and layoffs, Borland is now one of the specialized companies with a clear focus on serving corporate and independent software developers with databases, programming languages, and tools. We also plan to add a significant amount of talent and resources to these areas.

**How does the acquisition of Quattro Pro by Novell/WordPerfect strengthen Borland's position?**

**Philippe:** Aside from the fact that it provides us with millions of dollars of working capital to invest in our upsizing, client/server products, entrusting the future of Quattro® Pro to our partners at Novell guarantees that customers can keep their software investments secure and growing. For our part, it means we can focus exclusively on our core businesses of databases, languages, and tools, and continue to provide customers with the first-rate technology products they have come to expect from Borland. And, with Quattro Pro and Paradox®, and their underlying object technologies, continuing as part of the Novell suite of products, even more customers will be able to experience the productivity gains that come from Borland software products.

**You made changes to your sales organization. How can you continue to provide the same level of customer service and support?**

**Philippe:** Our plans are to actually increase our levels of customer support, which currently are at



Philippe Kahn  
Chairman, Borland International, Inc.

"Fundamentally, what we have done is to focus the whole company on upsizing and client/server."



near record highs. A recent study by Arthur Anderson shows that what companies want most from vendors is "a capable inside salesperson," rather than a field sales rep. The changes we've made to our sales strategy, including the merging of our customer service, technical support, and sales departments are all aimed at providing better customer support. This new organization will provide customers with more technical information and consulting in a more regular and timely manner. It's the best way to supply and support the more sophisticated client/server products. In addition, we have expanded our third-party programs which provide powerful incentives for independent VARs, systems integrators, developers, and trainers to offer even higher levels of local and on-site support.

**Lots of companies say they do client/server. What makes Borland's offerings unique?**

**Philippe:** Borland is providing people with a migration path from standalone desktop computing to client/server computing in a manner that does not require long and difficult retraining programs. Millions of software users and developers can work with their familiar tools—Paradox, dBASE®, Borland® C++, Pascal—to develop Windows applications that are client/server ready. And Borland's early commitment and continued leadership in object-oriented technologies makes it even easier to take advantage of our advanced software products.

**What's the big picture for Borland? Where do you expect to be a year from now both professionally and personally?**

**Philippe:** It's already taking shape. There are already more client/server applications in use with Paradox for Windows than with any other PC database. Borland C++ is the market leader in languages. And this summer we are looking forward to shipping dBASE for Windows. Granted, it has taken longer than expected, but we believe that customers worldwide will be glad that we built it correctly and did not release it prematurely. This will begin a new era for Borland and its customers. Later this year, we will ship a next-generation visual development tool that goes far beyond products that are currently on the market. Borland will have an integrated suite of databases, languages, and tools that is second to none. As for me personally, I am totally committed to working closely with our new management team as Borland begins its second decade of providing customers with first-rate software products.

"Borland is helping developers evolve applications into client/server, rather than go through client/server culture shock."

Aaron Zornes,  
META Group

"As a database and tools vendor, Borland should experience an acceleration in momentum."

Rick Sherlund,  
Goldman Sachs

**Borland**  
The Upsizing Company



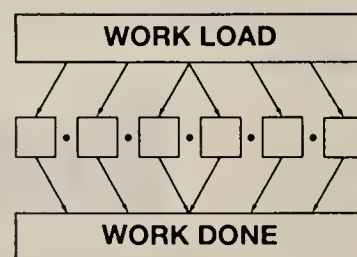


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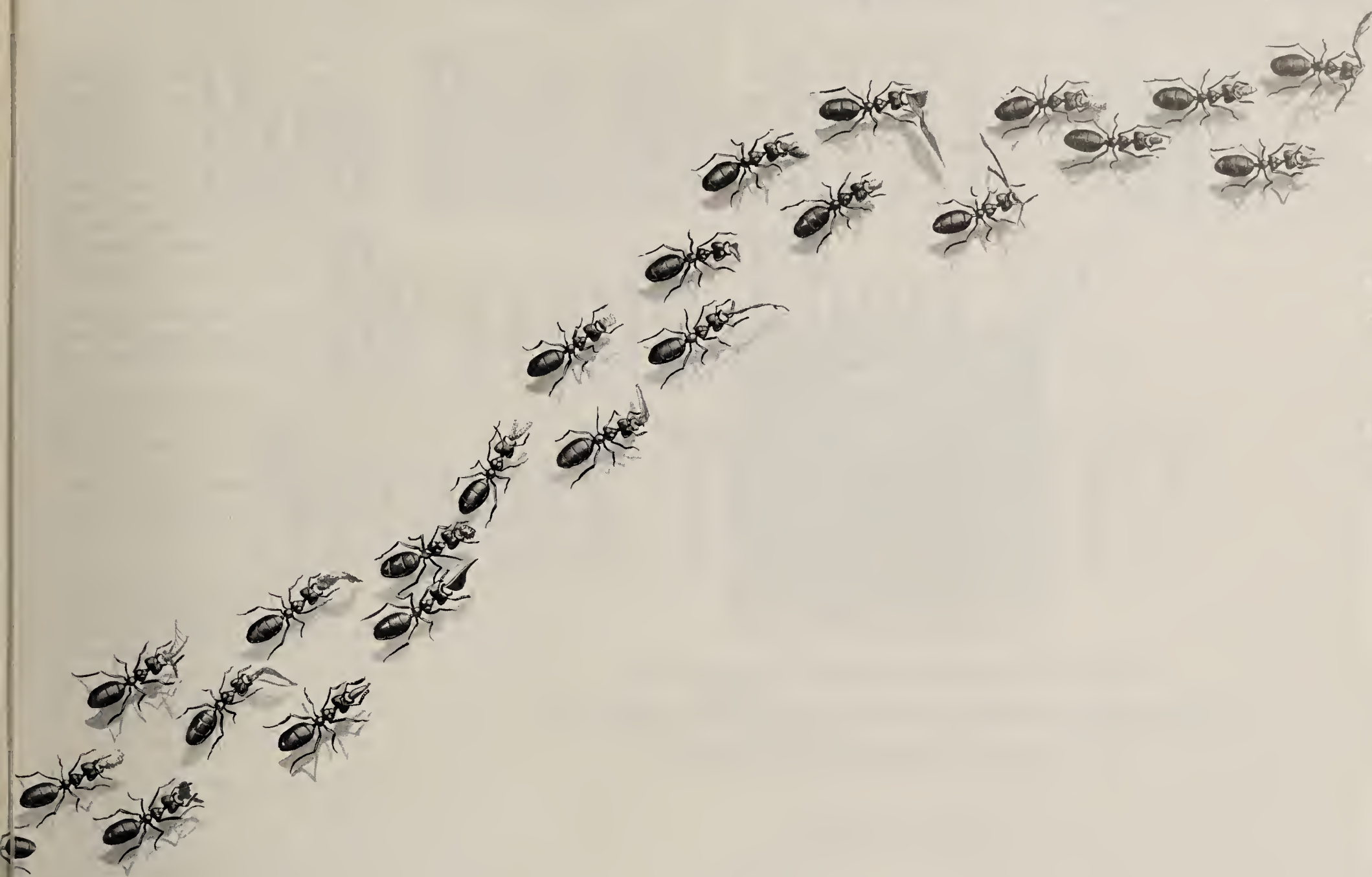
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# Users laud CA's improved support

By Thomas Hoffman  
CHARLESTON, S.C.

Customer service and product support have improved dramatically since Computer Associates International, Inc. revamped its client service organization two years ago, according to attendees at a CA user group conference last week.

Users who attended the Computer Associates Operations Support (CAOS) conference as far back as three years ago noted how much the atmosphere had improved. In 1991, "the entire CAOS group roared about support problems to the CA representative who attended," said Ann Bradford, an operations analyst and CA-Dispatch user at Service

Merchandise Co. in Nashville, Tenn. "Since then, support has been excellent, and we've been able to concentrate more on technical issues," she added.

CAOS comprises 50 companies and government agencies that meet annually to discuss technical aspects of high-end CA systems software products such as CA-1, CA-Scheduler and CA-Dispatch.

Prior to the service overhaul, phone calls placed to CA's technical support staff were often bounced between CA technicians or returned hours later, according to several conference attendees.

As recently as November 1992, "We'd have to tell CA that our system was down completely in order to get a response from them," said Lee Knapp, another Service Merchandise technician and a CA-Scheduler user. In the past, Knapp said his phone calls to the vendor often went unanswered for a full day. "Now, our calls are either answered immediately or returned within 10 minutes," Knapp added.

In response to complaints throughout its user base, CA implemented the Client Service Representative (CSR) program in April 1992.

"We saw the handwriting on the wall. We should have done this four years ago and not two years ago," acknowledged Kurt Seibert, senior vice president of strategic planning at CA. Since CA initiated the program, the vendor has quadrupled its CSR staff to 500, according to Seibert.

The company has refined customer support program during the past two years, so that it now fields 93% of customer calls on a first-call basis, said Henry R. Heidler, a senior vice president of research and development at CA's Mount Laurel, N.J., facility. That compares favorably to CA's first-call response rates in 1991, which hovered around 70%.

## Individual attention

Under CA's retooled client service organization, each user company has a dedicated customer service representative who is familiar with each client's product set and business requirements. If a customer service representative is unable to field a client's technical request, the problem is then forwarded to an adjunct technical service representative with in-depth product experience.

As an added plus to the program, customer service representatives are responsible only for client support and not product sales — an organizational change that delighted several conference attendees.

"It seemed like our old [CA] customer representative used to pitch us new products every time we had a conversation," said Kathy Greer, a supervisor for operations support at a North Carolina-based pharmaceutical manufacturer. "Now we just stick to the issues at hand, which is the way it should be," she said.

Overall, CAOS attendees said the improvements in customer support have led their organizations to consider additional CA products, including workstation-based systems software packages such as CA-Dispatch/PC 1.1, which is completing beta testing and will soon begin shipping.

"I work with CA-Dispatch every week, and I can honestly say that I've been able to get immediate support every time in the past 18 months," said Kent Herald, the acting CAOS president and a consultant at TechSystems, a Dallas-based consultancy.



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# Mixed-host disk arrays on the horizon

By Craig Stedman

Mainframe storage vendors are promising to deliver disk arrays that can be hosted by either mainframes or Unix systems, a move hailed by customers who want to hang onto their storage devices as they move to client/server platforms.

Stan Johnson, director of information systems at Worldport LA, the port authority in Los Angeles, said disk arrays that run on multiple systems would be "a radical departure" with positive implications for customers. "People are looking to make some kind of transition to client/server, so [storage] devices are going to have to work in both environments."

## In the works

EMC Corp. confirmed last week that it is working on mixed-host versions of its Symmetrix arrays for shipment in 12 to 18 months. Michael Ruettgers, EMC's president and chief executive officer, said some initial Unix-capable products should be ready late this year, although he did not say whether those devices would also support mainframes.

Hitachi Data Systems Corp. said it plans to provide a mixed-host capability next year. Amdahl Corp. is expected to join the crowd through a recent OEM deal

with Encore Computer Corp., and IBM is also thought to be interested in the concept, according to users and analysts.

Users applauded the idea of supporting both mainframes and Unix systems with the same arrays as a welcome form of investment protection.

"It's very important that we have pe-

ripherals that work with various machines and can be moved about," said Paul Maszczak, corporate director of data processing operations at C.R. Bard, Inc., a medical equipment manufacturer in Murray Hills, N.J.

Bard wants its storage devices "to stay stable while we scale our processors or shift to other platforms," Maszczak added. The company, which currently uses IBM mainframes and AS/400 machines, is considering adding some RS/6000 systems, he said.

Mixed-host support is becoming "very important from a buyer's perspective because their forecasting ability for what [systems] they're going to have, in their shops two or three years out is terrible," said Jim Porter, president of Disk/Trend, Inc., a market researcher in Mountain View, Calif.

Some arrays are already tied to different hosts, he said. For example, Data General Corp.'s Clariion unit is primarily a Unix device but will be used by Storage Technology Corp. in its upcoming Nordique mainframe array, a lower-capacity companion to its more publicized Iceberg.

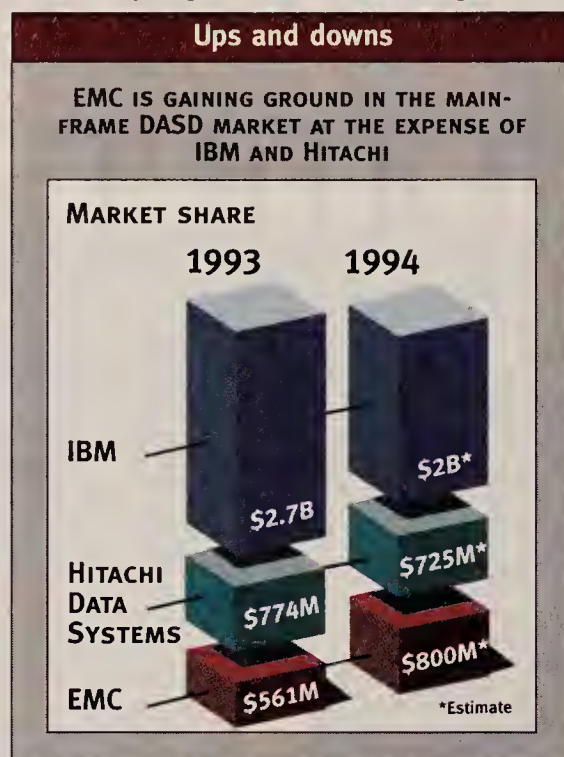
Porter said mixed-host arrays would probably still cost less with Unix systems because of price differences at the controller level. However, the controller typically accounts for only 10% of an array's price, he noted, and disk drive costs would presumably be similar for both mainframes and Unix machines.

The early mixed-host arrays are expected to be limited to supporting a single mainframe or Unix machine. However, Nick Allen, vice president and storage director at Gartner Group, Inc. in Stamford, Conn., said capabilities for dividing an array among multiple hosts could be added by 1996 or 1997.

While HDS will offer mixed-host arrays, Disk Storage Marketing Director Ray Cosyn questioned whether the capability will be used as much more than an insurance policy. The ability to change host systems "sounds good as a sales gimmick, but in reality I just don't see that happening much," Cosyn said.

Meanwhile, EMC upped the capacity reach last week of its Symmetrix 5500 disk array line with a model that supports 1T byte of data. The 5500-9 targets IBM's 3390 Model 9 "Fat DASD" array but performs like the faster 3390 Model 3.

HDS and Amdahl also plan to ship 3390 Model 9 competitors in the third quarter. But analysts said the success of EMC's smaller Symmetrix arrays should give it a leg up on IBM and the other vendors.



Source: International Data Corp., Framingham, Mass.



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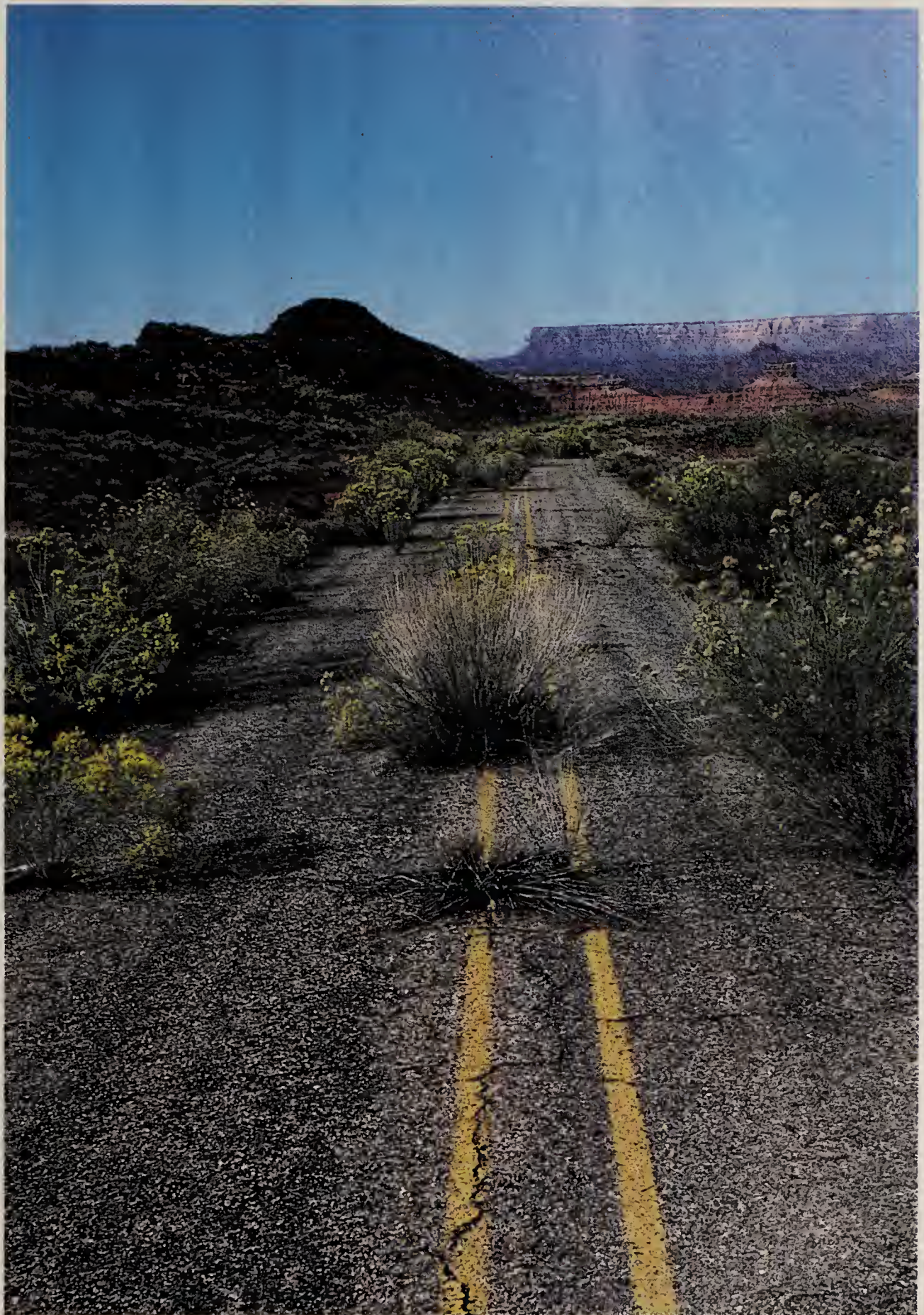
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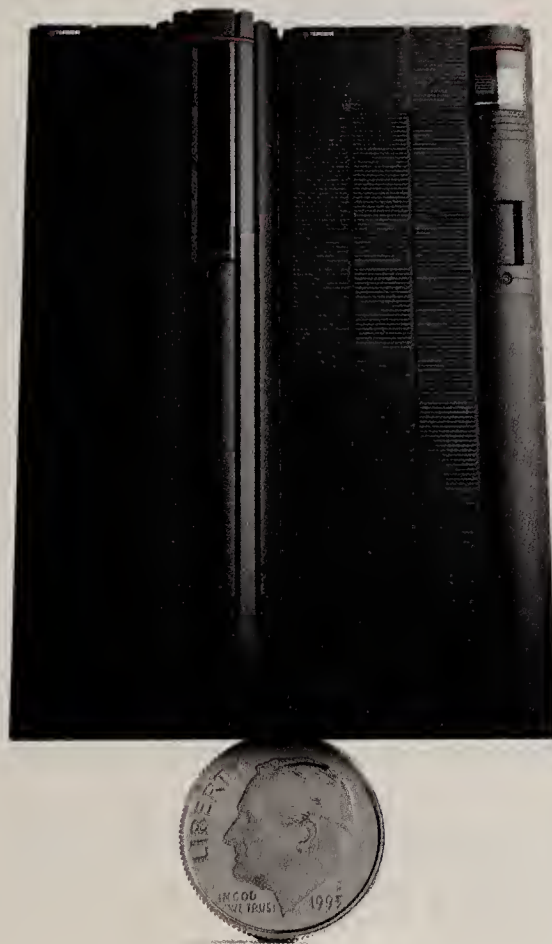
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# Denver Airport hits systems layover

By Jean S. Bozman  
DENVER

■ The city of Denver has put the opening of Denver International Airport on hold indefinitely as the nation's largest airfield struggles to resolve problems with a 20-mile-long computerized baggage-handling system that has mangled its cargo.

The airport, which will replace Denver's Stapleton Airport, had been scheduled to open this week — and each day it fails to costs Denver another \$500,000 in the \$3 billion project.

An unhappy combination of power fluctuations, mechanical glitches and software problems has prevented the baggage system from being completed, said Frank Kwapniewski, site project manager at BAE Automated Systems, Inc. in Carrollton, Texas, which installed the baggage system.

Decentralized computing, otherwise a hallmark of the new airport's architecture, allowed the PC-controlled baggage system to operate outside the control of the airport's information systems department.

"The only thing we coordinated with was the flight information from the airlines," Kwapniewski said.

Each functional unit of the airport — from security, heating and ventilation to facilities management and the airlines

themselves — has its own computer systems. Subcontractors operate them.

"We are very decentralized," said Dave Dixon, a systems analyst who supervises the airport's facilities management system, which is based on Hewlett-Packard Co. Series 700 Unix workstations. "We all talk to each other through the city's [fiber-optic] network."

Computers pass files and messages over the central Fiber Distributed Data Interface (FDDI) network operated by the airport IS department. The IS staff supports PC LANs and workstations on the network and maintains central servers.

## Heart belongs to client/server

Client/server computing is very much at the heart of the airport's computing architecture, said Ivan Drinks, MIS director for both Denver International and Stapleton airports.

"Rather than come up with the magical supercomputer that's supposed to run everything at the airport, we've got a bunch of distributed systems that are specialized for particular functions," he explained. "What we do is interface them all."

The baggage system, for example, operates on its own fiber-optic network, which sits apart from another fiber-optic FDDI network operated by the city that acts as a backbone for the airport's client/server systems.

For most airport users, however, there are central services and applications. An airport data center houses an IBM AS/400 for maintenance applications, and a NetFrame Systems server supports a Novell, Inc. NetWare 4.01 LAN for hundreds of PCs. An IBM ES/9000 mainframe that was moved from Stapleton Airport to the new airport — some 15 miles away — has continued to

process accounting applications for Stapleton via a T1 data line. Unix servers support point-of-sale terminals and an airport information system.

Once Denver International opens, the remaining computers at Stapleton will move to the new site.

The sheer size of the airport and its 53 square mile area virtually ensured a distributed computing architecture, computer systems managers said.

"There is so much geography that you absolutely have to have a fiber-connect-

ed distribution system," said Bruce Van Zandt, a US West employee who is operations manager for the backbone communications network.

Yet the complexity of the task facing the nation's first major airport to open since Dallas-Fort Worth Airport in 1974 has strained the technology, too.

"The major systems, like the baggage and the communications system, pushed the envelope of technology," Van Zandt noted. "The components that were put into the system were run right to the limit of what they were designed for."

## No end in sight

For example, users said, the baggage system is similar to one BAE installed in San Francisco's United Airlines terminal — but it is 10 times larger. PC consoles in nine control rooms track bags throughout the airport on some 4,000 automated carts. At most airports, airlines operate separate, smaller baggage systems.

The problems with Denver International's baggage system are not over yet. The city plans to test it for more than a month to ensure its reliability before opening the airport, users said.

"This thing is 20 miles long, so you have numerous problems that are solved at one end and then have to be resolved on the other," Kwapniewski explained. "You take two steps forward and one step back."



DAVE MARSHALL

# Micro Focus users prepare for change

By Jean S. Bozman  
SAN FRANCISCO

Not every programmer feels comfortable with client/server computing, Unix and object-oriented programming, no matter how popular they may be.

For many of the Cobol users attending the Micro Focus, Inc. user conference held here last week, the No. 1 choice for building distributed systems is through an evolutionary rather than revolutionary approach. That is because the notion of re-engineering old code or moving quickly to client/server is threatening to many programmers who have been Cobol users for 10 years or more.

"It's just a giant leap," said Peter Szirmak, a senior partner at Information Balance, Inc., a Toronto consulting firm. "I guess they want to find a balance since they have invested a lot of money in training their programmers."

## Starting over by rewriting

"It's a real predicament," said Charles Murano, a developer at Cotter & Co., a Chicago hardware store company that includes the True Value chain. "The right way to go to client/server is to start all over. But economically, that's out of the question. So a lot of people want to put up a client/server project and gradually rewrite [their] applications."

In many cases, programmers said they invested 20 years or more in Cobol code, which is literally running their businesses.

"It's an asset that's already in place," said Steve Josselyn, manager of systems market research at International Data Corp. in Framingham, Mass. "To rewrite an application, you either have to retrain your current staff with those new skills or bring somebody in who has the new skills, which is an additional cost."

At the conference, Micro Focus unveiled new products that will lead to a client/server environment, including Micro Focus Object Cobol [CW, May 9], a new object-oriented Cobol compiler for the Micro Focus Workbench 3.2 product, and enhanced graphical user interface (GUI) support (see story at right).

## A step in the right direction

Micro Focus Cobol users have already taken the step to develop Cobol applications on IBM-compatible PCs running DOS, Windows, IBM's OS/2 or on workstations running Unix. The next step toward client/server applications, many users said, is to integrate GUIs and objects into their Cobol-language applications.

Micro Focus Object Cobol, which is supported in the firm's mainline Workbench 3.2 integrated tool kit, is a step in the right direction, some analysts said.

"If nothing else, it's valuable as a vision," said Kevin Schick, an analyst at Gartner Group, Inc.'s application development technologies service in Stamford, Conn. "The challenge for Micro Focus is to continue to deliver products against that vision."

However, support for true persistence and full inheritance — two hallmarks of object-oriented programming — will not be available until future products ship, said Micro Focus object expert Raymond Obin. The firm is also writing a C++ "proxy" to ease communication between Cobol objects and C++-based objects, he said.

Nonetheless, users said they are pleased that they now have a way to gain object-oriented programming experience in a familiar Cobol-development environment. "Only a few percent of our programmers have object-oriented programming skills, so Object Cobol would be the easiest way to make the transition," one Virginia developer said.

## Focus pocus

Micro Focus upgraded its line of desktop-based Cobol development products last week with objects, new GUI features and more support for client/server computing.

Among the highlights are the following:

● **Micro Focus Cobol Workbench Version 3.2:** It includes an enhanced release of the Animator source-code debugger, a new compiler for Object Cobol and support for the native Windows and OS/2 user interfaces. Priced at \$2,500, it will ship in late June.

● **Micro Focus Object Cobol option:** A version of Micro Focus Cobol that allows users to "invoke" predefined objects as part of their procedural-code programs. Special syntax lets users include objects in Cobol statements. The 16-bit version should ship in June; a 32-bit version will be announced by year's end.

● **Support for mixed languages in Workbench 3.2,** allowing users to link Microsoft Corp.'s Visual C++ and PowerSoft Corp.'s PowerBuilder to Cobol programs.

Micro Focus, which is based in Newbury, England, and Palo Alto, Calif., also said it strengthened on-line customer support to reduce waiting time for users.

—Jean S. Bozman



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## Briefs

### Media Vision probe

The Securities and Exchange Commission and the Federal Bureau of Investigation are investigating multimedia developer Media Vision Technology, Inc. for possible securities violations. Adding to its woes, three directors resigned, layoffs are expected, the television-set-top business closed, and a restatement of the firm's fourth-quarter results are expected to negatively impact its \$19.9 million profit for the fiscal year.

### Kendall posts loss

For its first quarter ended March 26, Kendall Square Research Corp. lost \$10.1 million, which included \$5.2 million in research and development expenses, on revenue of \$900,000. For the same period last year, the firm had a restated loss of \$3.1 million on restated revenue of \$7 million.

### Interactive merger

Aiming to accelerate the convergence of on-line services and multimedia capabilities, America Online, Inc. and Redgate Communications Corp. last week agreed to merge and provide new interactive services. Redgate is a media and interactive marketing service company.

### Dell revamps execs

Dell Computer Corp. named Morton L. Topfer, 57, vice chairman. He is a former president of Motorola, Inc.'s Land Mobile Products sector. Together with Dell Chairman Michael S. Dell, Topfer will head the newly formed office of the chief executive to which all executives will report.

**SHORT TAKES** California Micro Devices Corp. sold 10% of its stock to Hitachi Metals Ltd., at \$24 per share. . . . IBM has agreed to sell its 590 Madison Ave. office tower in New York for an estimated \$200 million to a real estate partnership.

## Feds' probe of Microsoft narrows

By Mitch Betts  
WASHINGTON

The U.S. Department of Justice is preparing to argue that Microsoft Corp.'s MS-DOS operating system and Windows shell are "essential facilities" in the PC software market, and Microsoft should share details such as undocumented calls, industry attorneys involved in the case said recently.

As the department researches its antitrust case against Microsoft, it appears the essential facilities doctrine — historically applied to utilities — is the leading candidate to provide a legal foundation for the case, according to attorneys who represent Microsoft rivals and requested anonymity.

### Fair access for all

The doctrine holds that a company owning an essential facility for a particular market, such as electric power lines or the only bridge over a river, cannot use that monopoly to hurt competitors relying on the essential facility.

Competitors such as Novell, Inc. argue that Microsoft's dominance of the desktop operating systems market means it should provide all application developers with fair access to information about DOS and Windows application programming interfaces (API).

Critics allege that Microsoft application developers have an unfair advantage because they know about undocumented APIs, for example. Microsoft has steadfastly

denied engaging in anticompetitive behavior.

The Antitrust Division will not have an easy time making its case, however, because some judges are skeptical of the doctrine.

"It's very difficult to prove an essential facilities case. The term has a nice ring to it, but the courts have not managed to define it well," said Stephen Calkins, law professor at Wayne State University in Detroit.



### Reshaping law

On the other hand, the ill-defined nature of the doctrine makes it "susceptible to shaping by good lawyering" by the government, Calkins added.

The key to proving the essential facilities argument is whether consumers have viable alternatives to DOS and Windows, given that Apple Computer, Inc.'s Macintosh and other operating systems exist. Microsoft's critics argue that most DOS and Windows users are practically locked into that environment because they would be unwilling to pay the cost to switch operating systems.

Richard L. Rosen, a section chief at the Antitrust Division, made the same point in a speech last year without specifically naming Microsoft. "If you want to change the operating system, you've got to change all the applications. That obviously imposes very high switching costs and imposes inertia on the market, reinforcing the market share of the firm with the large installed base," Rosen said in his speech.

### Antitrust 101

#### • Sherman Act (1890):

Section 1 prohibits anticompetitive agreements such as price-fixing and tying. Section 2 prohibits abusive practices to gain or keep a monopoly in a relevant market.

#### • Market power:

The ability to control prices or exclude competition. One indicator would be market share of 75% to 80%.

#### • Relevant market:

All buyers and sellers of competing products. Defining the boundaries of the market can be the key to winning or losing the case.

#### • Tying:

Conditioning the sale of one product on the buyer's purchase of another. Typically, the seller has sufficient market power to leverage increased sales of the second product.

#### • Settlement:

A defendant may decide to sign a consent decree, agreeing to cease or modify its practices.

Antitrust experts are divided along political lines over the merits of the Justice Department's approach.

Luke M. Froeb, a former antitrust economist in the Reagan and Bush administrations, called it "a huge mistake" that will lead to intrusive government regulation of the software industry and stifle innovation.

"The essential facilities doctrine will put the court in the position of determining who gets access to the [Microsoft] code and what price to charge," said Froeb, who is now at Vanderbilt University in Nashville.

### Choosing the argument

However, Warren Grimes, former chief counsel to the monopolies subcommittee headed by Democratic congressman Peter Rodino in the 1980s, called Microsoft "the AT&T or Standard Oil of our times."

The Justice Department "would be foolish not to advance the essential facilities argument. I think there is an analogy there," said Grimes, now a professor at Southwestern University School of Law in Los Angeles.

An alternative doctrine is "monopoly leveraging," which could be applied if Microsoft used its market power in systems software to stifle competition in applications software. But as in many antitrust cases, the difficult part is distinguishing between vigorous competition and attempted monopolization because "both look very much alike," said Frederick L. Cooper III, a software attorney in Norcross, Ga.

## Novell gets go-ahead for buyout

By Elisabeth Horwitt

■ Novell, Inc. last week said it obtained the necessary U.S. antitrust regulatory approvals for its proposed acquisition of Borland International, Inc.'s Quattro Pro business and WordPerfect Corp. The merger is slated to go through in June.

Novell executives assured analysts at a recent briefing that delivery of the strategic NetWare 4.1 is still on track for year's end. Other good news was that NetWare 4.01 sales are about to increase as a percentage of monthly total revenue, after slipping steadily since the initial shipment in April 1993, a Novell spokesman said.

Sales of NetWare 4.01 were less than \$20M in the first quarter of 1994, down from about \$40M in the first quarter that the product shipped.

### Sales likely to go up

Novell shipped almost \$100 million worth of NetWare 4.x in fiscal 1993, the spokesman said. The vendor is expected next week to release its financial results for its second fiscal quarter ended in April.

Frank Michnoff, a vice president at Prudential Securities, Inc., said he expects Novell to report about \$340 million in revenue and a net income of \$82.8 million for the second quarter — a slight upturn from 1993.

"I expect NetWare 4.x to hit its stride in

1995," Michnoff added.

"My sense is that Novell is not pushing companies to upgrade their whole organization to 4.x now but rather saying 'get some in, get comfortable' " and wait for NetWare 4.1 to provide crucial missing pieces such as support for NetWare 3.x, Michnoff said. Included with 4.1 will be support for existing NetWare Loadable Modules and tools to ease setup and configuration of NetWare Directory Services.

NetWare 4.02, an upgrade that will include all of the patches Novell has released since 4.01, is expected to ship early this summer.

Meanwhile, WordPerfect Chief Executive Officer Ad Rietveld predicted that revenue would grow between 10% and 15% this year. WordPerfect laid off approximately 1,000 people earlier this year.



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## AND THE SHORT OF CHOOSING A ROUTER AS TOLD BY FIRST OF AMERICA.



**BOB FISHER** is the  
Systems Analyst at First of  
America Services, Michigan.

"Primarily, we evaluated four routers — Cisco, Wellfleet, CrossCom, and Proteon — for SNA internetworking, IPX and IP capabilities.

"When it came to hardware configuration, Proteon provided extremely easy access. You could pop the cover off and readily change interfaces without having to string a bunch of cables. They provided flash memory for the operating system and configurations, so there was never any boot-

ing off a diskette. The LEDs on the front panel were also very nice. A quick look would tell you whether a given interface was up or not. None of the other router vendors provided that. In terms of speed and efficiency, Proteon beat the others hands down. And as far as the overall support for different topologies, Proteon worked well with everything. Unlike other brands we tested, the Proteon router was a true gateway.

"Reliability was another major criteria for selecting First of America's new router. You see, if we can't service our customers, we're out of business. Our network ties together six hundred bank branches. These terminals simply can't go down. So choosing a router to carry this traffic wasn't a decision I took lightly. Proteon proved to have the reliability we need. And if any questions did arise, Proteon's support representatives were readily available and very knowledgeable.

"Our bank is in acquisition mode, so integration is critical. After any merger, we have to integrate new networks into ours while migrating their applications. Right off the bat, our routers have to support all kinds of topologies. By deploying the Proteon DNX router at regional sites, we were able to provide these locations with SNA support very quickly.

"In terms of overall technology and performance, I'd have to say the Proteon router is absolutely the best."

# THE SHORT

## OF CHOOSING A ROUTER AS TOLD BY PROTEON.

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"Proteon's reliability is second to none."

"We'll integrate any multiprotocol network."

"Amen."

**proteon**

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Dept. 501



## Editorial

## Turning point

The history of Digital Equipment Corp. is both glorious and ugly.

In the 1970s, Digital grew from a benchtop operation to the most viable option for customers moving to distributed, minicomputer-based architectures. The company was the paragon of the entrepreneurial spirit.

Digital is also second only to the Boston Red Sox in the number of golden opportunities it has frittered away. It is this carelessness that has put the company's chances of survival into serious question.

That's not an overstatement, either. Sales of the former bread-and-butter VAX lines are ramping down far more rapidly than Alpha sales are ramping up. That's what happened at Wang, Data General and Prime. And Digital's sales force is often seen as sowing more confusion than sense at this critical time for corporate users.

Internally, the company is a mess. How do you get 85,000 workers to concentrate on their jobs when they know that one in four of them is going to be axed in the coming months? How could internal financial controls be so shoddy at this critical juncture that even the CEO of the company was totally blindsided by a recent gush of red ink? Is it my imagination or are Digital's engineers still out of sync with its sales and marketing efforts?

Computerworld's exclusive survey of Digital customers [CW, April 25] reveals that users are generally keeping the faith. But corporate IS must sell its spending plans to executive management, and those of you doing just that know full well how tough a sell it is becoming.

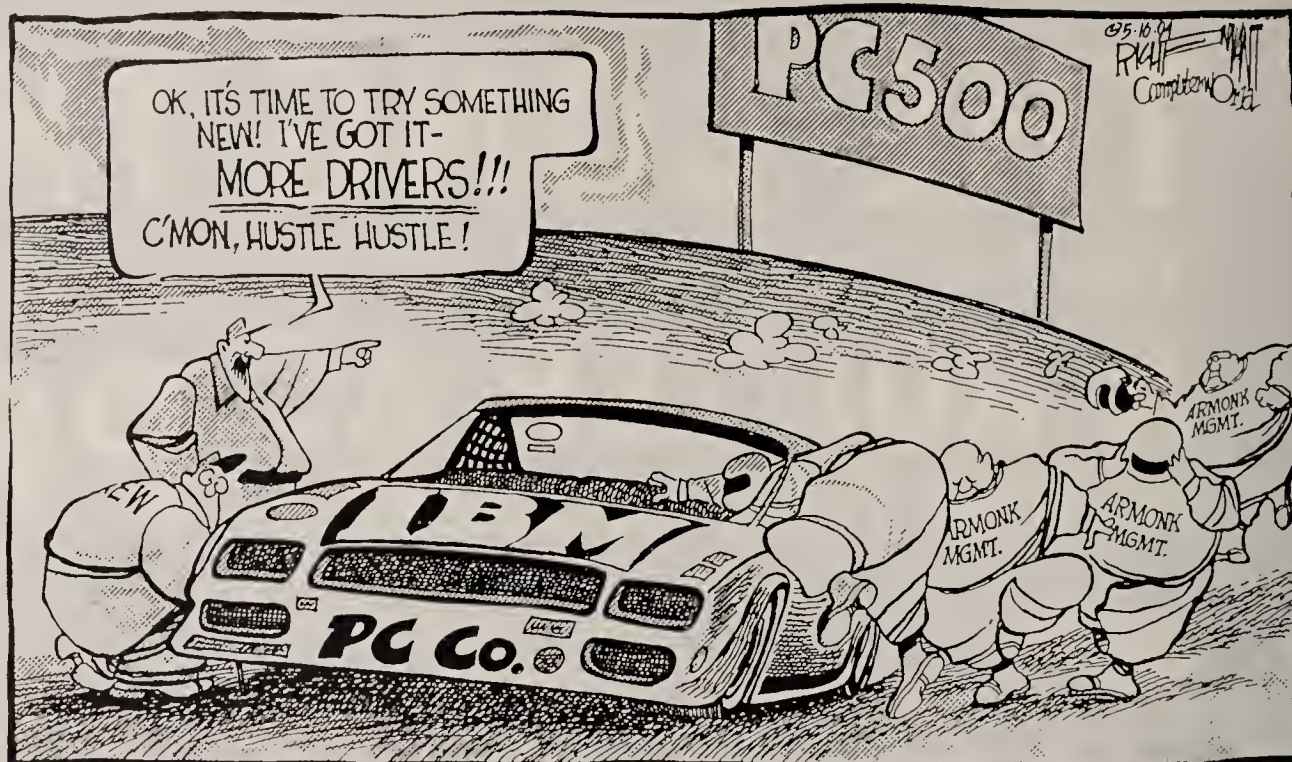
The path leading to a brighter future at Digital originates in its past. The pride in its engineering expertise—pride bordering on hubris—must be reconciled with the market. Digital's first foray into PCs—the Rainbow—produced an overengineered albatross out of touch with the will of the user community and the established IBM compatibility standard. That same arrogance would later make the company an afterthought in the open systems movement, as it paid only lip service to Unix in favor of its “superior” VAX architecture.

Digital does not have the power to make the Alpha chip a standard. I get the feeling the company still thinks it can. Maybe a better idea is to focus exclusively on doing everything imaginable to provide the vast VAX installed base with a path to open systems architectures, utilizing the company's outstanding networking and integration capabilities to do so.

President and CEO Robert B. Palmer has had ample time to streamline an incredibly dense and complex management structure, one that clearly inhibits decision-making and fluid information flow. I don't sense that he's done that much here, the recent “surprise” quarterly loss being one example. He should do it or step aside.

*Bill Laberis*

Bill Laberis, Editor in Chief  
Internet: blaberis@cw.com



## Letters to the editor

Re-engineering:  
A worthy remedy

Regarding the CW Guide to Legacy Data Access [CW, April 25]: These direct access tools have little or no means to determine the meaning of actual legacy data values, which are often stored without respect for business rules and meta-data descriptions. As a result, users have no way to determine whether answers to their queries are accurate or bogus.

Data re-engineering is no trivial task. It automates the investigation, standardization and integration of data from multiple sources through sophisticated parsing, lexical pattern processing and analysis and statistical matching to retrofit legacy data for the relational world. GUI-based PC data access tools are Band-Aids compared with the data re-engineering cure.

George Burch  
Validity Technology  
Boston

Middleware  
has its place

Mark Crego's "Navigating the legacy quagmire" [CW, April 25] accurately describes the genuine need for access to legacy data. Legacy data-access tools such as middleware allow information technology departments to maintain the reliable and secure nature of mainframes, as well as take advantage of today's open systems.

Middleware eliminates the need for massive programming efforts to build the interfaces necessary for the free flow of data throughout the enterprise.

W.H. Highleyman  
Wilmington, Del.

Stop missing the  
mark with projects

"No More Creeps" [CW, May 2] highlighted one of the shameful secrets of the software development field: Few managers of software projects know how long their current project will take.

In your article, 23% had overruns of zero to 10%, and 68% had overruns of 11% to 50%. In other words, 91% of all software projects miss cost or schedule commitments. People now expect projects to be poorly managed.

My advice is to start measuring your current project today and stick with your present technology until you can predictably estimate how long projects will actually take. Freezing as many variables as possible will allow a manager to manage. It is better to sit out a few rounds and master what you already have in place.

Bob Moran  
Moran & Associates  
Piscataway, N.J.

## Far from dead

We think it is unfair to label our exhibition as being on its deathbed [CW, Liners, April 25]. Networks Expo in San Francisco was the launch of a new show in a new city. What you also may not be aware of is that it may take several years to establish a show in a new market. In fact, the attendance at Networks Expo in San Francisco was on par—if not better—than the attendance at the first Interop, Comdex and PC Expo—some of today's largest industry events.

James O'Rourke  
Chief executive officer  
Blenheim IT Events Division  
Fort Lee, N.J.

## Passing the buck

John Gantz's column, "Outsourcing: The scam may be on you," and your editorial cartoon in the April 18 issue question the validity of outsourcing.

Thirty years of managing data processing groups and facilities has taught me there is no question. Outsourcing has never been and will never be anything but a gimmick to let general management avoid accountability for success or failure of the enterprise.

Earl Gates  
Decatur, Ill.



Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail: 279-6273; Internet: letters@cw.com. Please include a phone number for verification.



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## Viewpoint

## The CEO who sees the light

James M. Connolly

Picture this. Novell's new CEO, Robert Frankenberg, checks into a hotel. He gets a smile from the manager (you get those when you're a CEO). He gets a nice room (yup, he's a CEO). He gets to move the bed in that nice room and use a nail clipper to pry a telephone

line out of the wall so he can use his notebook PC to check his E-mail. Hey! He's no different from the rest of us.

Frankenberg is a computer user, and if nothing else, he brings to Novell an understanding of what the computer industry — and IS —

do to make life miserable for users. When he took the stage for a keynote address at the Networld/Interop '94 show this month, he made it very clear: He knows the frustration of arcane DOS file structures, Unix commands and trying to find an RJ11 telephone outlet.

This column was written and rewritten in the days before Frankenberg's speech. My theme was that the industry doesn't put itself in the place of the user. It figures users do dumb

things with computers because they just don't understand them. I want to thank Frankenberg for letting me know I'm not alone — users shouldn't have to understand computers. My computers are tools, just like my chain saw, screwdrivers and lawn mower. (Although I am grateful that the screwdrivers and computers don't cut off body parts when I make a mistake.)

Then Frankenberg described the frustration of dealing with "dots" in file names and of having to know the "address" of another user who may be lost in the Tower of Babel that is an E-mail directory. He later re-

called how he began his tenure in Hewlett-Packard's PC group by going out on his own to install a PC. It took him 18 hours, which inspired his now eager-to-please employees to make it easier to do — in 20 minutes. He promises to try the same test with setting up NetWare. By Jove, he's got it! Every other CEO talks about how his products already are easy to use. Frankenberg talks about how they should be.

I know, you're thinking I'm just another technophobe complaining about having to learn something new. I may not be a power user, but I honestly do enjoy using a computer. What I hate are things like trying to find files when I'm not sure of the exact location. (If I knew the location, I wouldn't be trying to find them.)

For all the vendor talk about commonality and ease of use, it is torture for any nonpropeller head to go from DOS to Windows, Windows to any communications package and from anything to Unix and the Internet. Make a mistake? All of these systems will gladly tell you that you messed up. None will tell you how to do it right. The Macintosh is better than most, but not by much.

Whichever industry sector you are in, get in sync (that's a computer term) with your peers and your competitors. Stop looking for a competitive edge from proprietary APIs, hardware interfaces and protocols. If you don't get together, you run a far greater risk than you realize: The tens of millions of people who really do want to get on the information superhighway (I detest that phrase!) just won't take truly meaningful steps until the computer is as easy to use as a telephone or chain saw.

Connolly is *Computerworld's* sections editor. He can be reached by MCI Mail at 597-1804.

*The computer has to be as easy to use as a chain saw, only safer.*



## Making the most of Notes

John Gantz

The results are in. The average return on investment for a Lotus Notes implementation is 179% over three years. One in four Notes installations has a three-year ROI greater than 200% — even accounting for the net present value of money.

These results came from a study conducted for Lotus by my employer, International Data Corp. (IDC), of 65 Notes sites around the globe about their ROI from installing Notes.

IDC independently picked sites representative of the Lotus installed base, the only qualifier being that they'd had Notes long enough to quantify returns. The key findings are these:

- Notes pays off.
- The speed of payback depends on how Notes is implemented, the existing infrastructure and the type of business.

Within the sample, the average up-front investment in hardware and software was \$248,000, and the average payback period — the point at which gross benefits minus operating costs and the cost of money equaled \$248,000 — was 2.4 years.

About five months ago [CW, Dec. 20, 1993], I wrote about the impact that Notes and other mail-enabled applications would have on IS departments. I knew anecdotally that Notes was quietly catching on, although a lot of companies were still in the pilot phase. I reasoned that when these applications went into production mode, they would strain existing networks

and information technology infrastructures — to the breaking point, if IS departments weren't prepared.

This was the dark side of Notes. Now I have quantifiable measures of the bright side. The pain of implementing Notes or other mail-enabled applications is worth it — probably more so than the pain of implementing a new general-ledger or inventory control system. A Notes application may more quickly buy us competitive advantage or productivity.

The companies that seem to get the most return from their investment in Notes are those that use it to redefine the boundaries of their enterprise — to communicate with suppliers and customers. By taking more risk than those who merely automate a workgroup process or an internal enterprisewide application — that is, by recognizing that Notes can be a beneficial agent of change — these companies get more payback than others (204% average a three-year ROI).

For IS organizations, yes, there will be unplanned stresses put on the infrastructure — it takes well-run servers and LANs, dedicated Notes administrators and plenty of end-user

training to make a Notes installation work.

But there will be rewards. Many IS departments found that Notes became the justification for LAN upgrades needed all along; they also found that they *don't* need Notes on every desktop to have a powerful application. And most IS professionals have found that links with a highly visible, successful application has more than psychological benefits. For many, the question is not whether the application pays off but whether the company gets all it can out of the software.

Perhaps the key to a successful Notes application is keeping expectations in line with reality — both with IS staff and end users. Since the application often takes both sides into

uncharted territory, this is not easy.

What's clear is that it's no longer career-threatening to contemplate implementing a new application like Notes. Soon it will be career-threatening *not* to.

Gantz is senior vice president at International Data Corp. in Framingham, Mass. He is responsible for all research and consulting in desktop automation and workgroup and office computing.

*The pain of implementing and supporting Notes or other mail-enabled applications is worth it.*





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In their annual quest for the desktop PC with the highest customer satisfaction in the business, J.D. Power and Associates recently surveyed 1,956 business users of desktop PCs†. What did



they discover? Dell owners were the most satisfied, which meant Dell earned the "J.D. Power and Associates Highest Customer Satisfaction Among Desktop PC Users Award" for 1993.

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## Letters to the editor

## 'Aha!' not that difficult

"Getting to 'Aha!'" [CW, March 21] lists five objections to object technology that are grossly generalized and thoughtlessly presented as representative of the industry today.

• **Executives don't understand it.** Executives in many of my client organizations would be surprised to hear this. They have investigated the business needs of information technology and see how object technology can help them achieve their goals.

• **Programmers don't want it.** The programmers who don't want it probably don't want anything new. We are working with many groups who want anything that can make them more productive and competitive.

• **Learning it takes more time and money than anyone wants to commit.** Who did you talk to to come up with this absurd conjecture? The rate of adoption proves this to be false.

• **Managers have to develop new rules for managing it.** True, although many of the same principles apply.

• **Large companies resist using it.** Some parts of some organizations resist any type of change. These parts are usually the first to go. Look a little further next time.

I work with vendors who develop object technology and Fortune 500 companies that adopt it every day. Users are benefitting from objects, developing applications ranging from leading-edge Wall Street financial products to Detroit personnel systems. An article that dismisses this work and the results is irresponsible.

*Adrian J. Bowles  
Westport, Conn.*

## Dell has a long way to go on notebook service

Michael Fitzgerald's otherwise excellent observations ["Dell it like it is," CW, April 11] neglected to identify the principal reason why Dell has not, and will not, be successful in the notebook business. And it has little to do with technology.

Dell's sterling reputation for quality products — and even better customer service — has not carried over to its notebook products. A visit to any number of public bulletin boards (CompuServe's Dell forum, for example) reveals enormous customer dissatisfaction, not only with Dell's now-discontinued notebook products (cracking cases, defective displays and so on), but also with the company's failure to acknowledge and correct these problems.

Before John Medica can "resurrect" Dell's notebook business, he'll have to regain the confidence of his customers.

*Carl Argila  
Pico Rivera, Calif.*

## Bonus package

In "Buy Smart: BBS software" [CW, March 28], you state that "BBS software built on multitasking architectures can support only eight simultaneous users per PC."

I regularly use a bulletin board system that (fortunately) doesn't know about this restriction. The OS/2 Shareware BBS at (703) 385-4325 currently supports 14 simultaneous, high-speed modem connections on IBM's OS/2 2.1 using Maximus BBS software.

*Kurt Germann  
Gaithersburg, Md.*

## Gateways aren't leading anywhere

Richard Finklestein's article on database gateways, "Gateways still need work" [CW, April 25], hit the nail right on the head.

Many users, including myself, have been extremely frustrated at the unexpected woes of accessing legacy data for reasons well-documented by Mr. Finklestein.

I have a sixth issue to add to the five already pointed out: Beware the main-frame database vendor that has recently added SQL front ends. In most cases, the SQL front end is put in due to competitive pressures from true relational database vendors and the availability of tool kits that use SQL.

However, SQL language semantics inherently encourage the relational data model, and many older database systems are based on the hierarchical model.

Most client software developers using SQL to access data [including most shrink-wrapped client development tools], assume a relational database at the back end and encourage the developer [or end user] to use relational constructs such as joins in their queries.

Guess what? In performance-critical applications, it is prayer time.

*Naveen Narula  
Plymouth, Mich.*

## Access to information will unify, not divide

I was interested to read your editorial on the copyright violation case and was intrigued by your segue to restriction of information [CW, April 25].

I'm not a zealot. I'm a woman (of childbearing age with a 2-year-old), and I think you've rather glossed over the issue of gender and age-biased human resources screening.

In particular, you write, "So why not screen out candidates who might, say, present a greater risk as medical insurance liabilities, like older people and women of childbearing age? That's illegal, but who's going to catch you? Probably no one, unless we have increased restriction to certain kinds of data."

Well, actually, when you go on an interview, of course, people can see that you're a 30-year-old woman, or see that you're pushing 55+, so this prescreening wouldn't work anyway. It is impossible to deny access to some types of information.

The only way to "catch" people who discriminate in this or other ways is to take seriously statistical anomalies (for example, 99+% of the CEOs in Fortune 500 companies are male) and interpret them as indicative of something, even if it is not litigable.

Personal (medical) information, professional trade secrets and so on have always been covered or coverable by contract. Unless you are proposing that human resources people break into private databases (which is presumably trespassing to begin with), I don't know that any additional information control is necessary.

The way to curtail abuse of information is to have sufficient penalty for unethical or immoral information abuse; morality and ethics are built upon social standards, and social standards are most effectively set by consensus. How can consensus be reached without sharing and discussing information? Thus I reach the conclusion that information must be freely accessible in order to attain moral and ethical consensus.

Once the consensus is attained, implications can be further examined, and consensus can be revised.

Thus the next question becomes: Since only a finite amount of information can be absorbed by people, who, if anyone, screens the information (the media)? What are the social/political/legal controls on the screeners?

I personally believe that only by allowing access to all public information — so that anyone interested can retrieve the information they find useful — can we begin to unify our culture(s) around a common system of ethical and moral tenets.

*Jessica Margolin Bailey  
Director of marketing  
Handmade Software  
Fremont, Calif.*

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## DEC in race to be Top 10 PC player

By Mary Brandel

In mid-April, as Digital Equipment Corp. faced its now infamous third-quarter loss, the Digital PC business unit was at the opposite end of the spectrum. Its PC revenue and unit shipments had more than doubled from the year before, with sales reportedly reaching the 230,000 mark — more than 1992's total sales.

In fact, analysts said Digital could be a Top 10 contender in the worldwide PC market by year's end if it can maintain its momentum. In 1993, it finished 15th, according to Dataquest, Inc.

The question that immediately leaps to mind is, why would a buyer choose Digital ahead of Compaq Computer Corp., IBM or Dell Computer Corp.?

### Why Digital?

The reason cited most often for choosing Digital, customers said, is service.

"When our customers choose Digital, it's because of added service or innovations" that Digital can provide, said Ken Fobes, vice president of ACR Systems, Inc., which sells point-of-sale systems. Storage-Works is one example of a Digital innovation, he added.

"Compaq makes an excellent PC, but it's all handled through dealers," Fobes continued. "That's what the Digital service organization brings to bear. They will take the entire

store of equipment and wrap it into a single service policy."

But the cost of quality service keeps Digital's prices just a little too high for some.

While facing budget constraints, the Bayfront Medical Center in St. Petersburg, Fla., needs to find 33-MHz 486 PCs with 100M-byte hard drives and 4M bytes of RAM for under \$2,500. "Digital's got a good product, but it's a little pricey," said Mike Loustaunau, application analyst at the center.

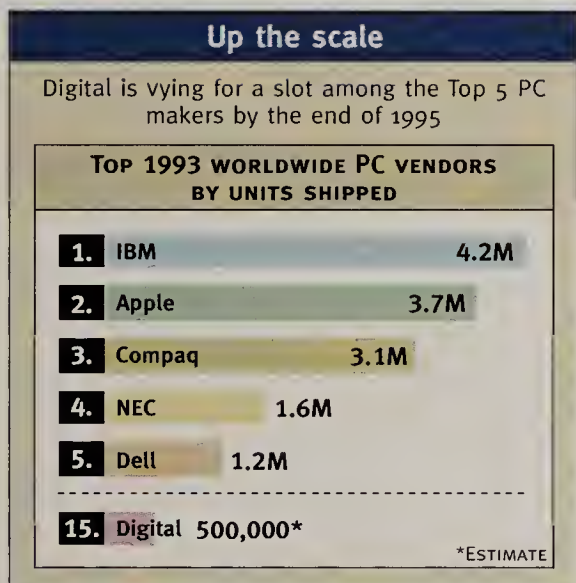
### Buying the name

"Digital is heading for a price point between Gateway and Compaq," said Chuck Venter, an analyst at Meta Group, Inc. "If you wanted a decent price but didn't want a real clone, Digital still has a better name than a lot of those players."

"Many of the ads for [PCs like] Dell and AST would suggest you can purchase them for considerably less money," said Richard Krohe, manager of technology architecture at London Life Insurance in London, Ontario. "But by the time you get to an equal configuration [with Digital], there's not much difference."

Digital started manufacturing its own PCs in August 1993 and now offers a variety of desktop machines and file/print servers; application servers are on the way, and Digital-manufactured portables are promised by year's end.

DEC, page 46



Source: Dataquest, Inc., San Jose, Calif.

### Close counts at DEC

When Enrico Pesatori took control of PCs at Digital more than a year ago, he was given the goal of becoming one of the Top 5 PC makers by the end of 1995. In an interview last week, he said Digital will at least come close and that the No. 5 spot is still his goal. But with No. 5 getting crowded, Pesatori said he would not be unhappy if Digital missed the mark by some thousands of units and ended up at No. 6.

Most analysts and Digital itself agreed that it will be OK to come close. "I hope we will be up there. But if you take the Top 3, Apple, IBM and Compaq, the rest of the companies are pretty much similar in size," Pesatori said, referring to Hewlett-Packard Co., Digital, AST Research, Inc. and Packard Bell Electronics, Inc.

HP recently said it is vying for the No. 5 slot, and even Pesatori sees that company as a tough contender. It shipped 600,000 units worldwide in 1993, according to Dataquest, up 129% from the year before. Digital sales were up 192.6% in units, but its total shipments were smaller than HP's. — Mary Brandel

## Microsoft's Allchin takes charge of Business Systems

In Microsoft Corp.'s recent reorganization, vice president Jim Allchin was named to head a new organization called Business Systems, which is responsible for Windows NT, NT Advanced Server and all the company's server products. The group also includes the Solutions Providers program, which works with outside resellers, Microsoft Consulting and the developer relations group. A co-founder of Banyan Systems, Inc. who prides himself on being a technologist, Allchin recently spoke with Stuart J. Johnston, Computerworld's senior correspondent, Northwest.

### CW: What was the purpose of creating Business Systems in the reorganization?

Allchin: Client/server is only one little piece of distributed computing. There is a transition going on, and there are huge dreams of distributed computing. But we're a long way from it, and the reality is it's expensive, and there is retraining that has to go on. There's not a single person you can call — it's multi-vendor. While there are huge advantages, we still have a long way to go. This is a decade-level vision. Many of these benefits don't just come from client/server. You actually get them as you move ahead.

For the past three years, we've been working on changing the people in the organization, the product strategy and how we leverage partnerships. We've hired a lot of people who have done very significant things before.

With the reorganization, we also refocused the company on how customers want to deal with Microsoft. This group is the largest product group in the company, and it's the largest sales and marketing group.

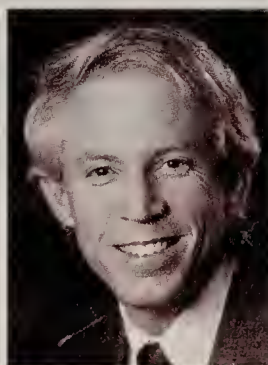
It isn't an overnight change, but I think we've now articulated this in a clear fashion. From a product strategy perspective, what we're trying to do is lay the right infrastructure for distributed computing. You start by laying a great foundation like NT and make sure it's portable. And we're committed to having the best-of-breed server applications. It's not quite like a desktop application. It's more of an enabling environment you can build on top of.

The areas we're concentrating on are database, messaging, systems management and host connectivity. We also want these things to be integrated both with the client as well as with each other and to the

operating systems and [have] interoperability with existing systems.

### CW: How does the Solutions Providers program fit into this?

Allchin: The Solutions Provider side is the counterpart of what I talked about in the products area. It is a business infrastructure rather than a technical infrastructure. It doesn't matter if you've got great products if you can't get the solutions to the customers and get their feedback. We are now going to be able to talk to them in a much more consistent way.



Microsoft VP Jim Allchin: "We're very happy being No. 2 in the workstation arena"

### CW: Are you going to make that 1 million units in sales of NT that Bill Gates predicted a year ago?

Allchin: The truth is I don't know, but I don't think so. I don't know because we don't have the right tracking. The unfortunate thing is we shouldn't have been trying to quantify it like that. The server side is doing better than we expected, and for the workstation we're doing very good, but it's tied to the market, not tied to the secretary's desktop.

But if there's anything that I hope you


write about, it is how deeply Microsoft is committed to this. First of all, we see this as the fastest-growing revenue opportunity. That keeps Microsoft's attention. The second point is that the NT technology is strategic to Microsoft.

### CW: Do you have any estimates of how many units of NT have shipped so far?

Allchin: No. But I need to emphasize that regardless of what the final numbers turn out to be, it's the wrong measurement. It's the wrong metric, and it also mixes client and server [sales]. We're happy with the quality. We're very happy with the design wins. We're very happy being No. 2 in the workstation arena [behind Sun]. And on the server side, we're doing exceptionally well compared with the numbers we planned for NT Advanced Server. And customers are happy.

I can't emphasize how strategic the technology is. Today, we're running the heart of our business [at Microsoft] on NT servers. We're doing [technical] support based on a massive NT Advanced Server database — 800 connections hammering at it all the time. We're in the process of moving the accounting and sales order entry and all that stuff onto it. We're going to base our entire business on it.





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## Portable computers

# OmniBook woes cause HP to reexamine line

By Mark Halper

It has been almost a year since Hewlett-Packard Co. entered the portable computer market with its 2.9 pound OmniBook subnotebook, and although the machine drew early applause for novel features, market acceptance for it has been a different story.

Despite critics' praise and the prestigious nameplate of the machine, as of the end of 1993 HP had failed to crack the list of the Top 25 portable computer vendors, according to market research firm International Data Corp. (IDC) in Framingham, Mass.

### A tale of expansion

With this in mind, analysts said HP is preparing to expand its portable offerings into a line of notebooks and subnotebooks by mid-summer. Sources said the line is expected to feature floppy drives, backlit screens and color displays — none of which is currently included in the OmniBook.

An HP spokeswoman would say only that those features represent "what mobile computer manufacturers are doing right now, and we are a player in that

market." She declined to elaborate on that statement.

Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass., said he expects to see new models this summer and that pricing should be competitive with rival models such as Compaq Computer Corp.'s Contura.

HP laid the groundwork for these new boxes in February when it introduced a version of the OmniBook with 105M bytes of storage — up from 40M bytes — and stopped bundling Microsoft Corp.'s Word word processor and Excel spreadsheet for Windows.

IDC analyst Ted Julian pointed out that the original lower storage capacity discouraged potential buyers. Even with compression utilities squeezing 80M bytes of storage into 40M bytes of raw capacity, the built-in Microsoft software took up half of the storage space, he said.

"They needed to offer people the ability to alter applications and not constantly be playing storage games," Julian said.

Giusto noted that the new models

should further address storage concerns by including an external floppy drive. Julian added that a floppy drive would make it easier to download data from desktop machines.

### Price range

Prices for an OmniBook with a 105M-byte hard drive start at \$1,399. The 40M-byte version starts at \$1,199.

That process, now done with Traveling Software, Inc.'s LapLink program, "is not like the familiar floppy drive people are used to," Julian said.

### Looking for speed

Clark Liddell, project engineer at Federal Express Corp.'s operations and engineering department, is an OmniBook user with another concern. Liddell said he hopes HP comes out with processors that are faster than the 25-MHz 486SLC it currently incorporates in the OmniBook.

Fedex pilots run a homegrown software program on OmniBooks installed in cockpits to help assess weather and runway conditions and determine optimal takeoff and landing logistics. The program takes about 15 seconds to assess one runway and up to two minutes for more than one runway, Liddell said.

## Briefs

### Motorola debuts new chip

Motorola, Inc. has introduced the 68060, a 3.3-volt chip expected to achieve its highest sales in the embedded control market. Motorola's biggest customer, Apple Computer, Inc., will not adopt the chip, though third-party upgrade companies such as DayStar Digital, Inc. will offer upgrade boards for current Macintosh users. The 68060 is available in 50-MHz and 66-MHz speeds. The 50-MHz chip will ship in volume late in the third quarter, and the 66-MHz chip will ship in volume late in the fourth quarter. Pricing is expected to be \$263 per chip in lots of 10,000 units.

### Caere drops scanner prices

Caere Corp. in Los Gatos, Calif., has dropped prices on the Windows version of its Omniscan hand scanner by nearly 45%. The scanner will now retail at \$239 instead of \$449. The company also plans to announce a similar reduction for the Macintosh version of its scanner.



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## DEC

CONTINUED FROM PAGE 43

At the University of New Orleans, Digital PCs are purchased for developers only or to run as servers. "A desktop PC doesn't need such high-quality service," said Daniel Smith, senior network analyst at the university.

The university also chose Digital because it will be able to upgrade the daughterboard to Digital's Alpha technology in the future. Kenneth D'Aquin, systems manager at the university, pointed out that Digital seems to build its PCs to excel in high-end situations. "At the low end, it's maybe not blazing fast," he said. "But load it up with 20G [bytes of data], as in a data center situation, and it scales a lot better" than other systems.

### A change in service

In the near future, however, Digital service may be harder to come by, analysts said, as the company makes its promised move to more indirect channels.

But the move to indirect channels is a critical piece of the PC business unit's success. With Enrico Pesatori's recent promotion to vice president of worldwide sales and marketing, observers say it is evident Digital is serious about moving its other systems in this direction, as well.

Pesatori said the unit currently sells 50% of its wares through indirect channels, which he started signing on last summer.

But to reach the Top 5, Pesatori said he is shooting for an even higher ratio of in-

direct sales. "I would believe a 70-30 [ratio] is the right balance, pushing to 80-20. We're only going to deliver direct to strategic accounts or those that want to deal directly," he said.

In order to reach a higher indirect ratio, Digital is now trying to crack the retail market, although analysts questioned its potential for success there.

Venter also said Digital could lose its best attribute by selling indirect. "I'm not sure they'll do that well selling to people they don't build relationships with," he said.

### Wanted: New customers

Digital's second big challenge is to attract buyers outside its customer base. Right now, Pesatori said 60% of sales are to the installed base, and he's aiming for 40% by year's end.

Where Digital has true potential, analysts said, is in what it can add to portables and personal digital assistants (PDA), given its networking expertise.

Digital says it will ship its own portables by year's end. "I hope it's something special," Venter said, referring to wireless capabilities and telephone integration. "Every corporate desk has a phone and a PC. Why not make it so if you call me and leave a message, it remembers the phone number so I just have to press a key to call you back?"

Digital said a PDA is in the works, but it will not ship one this year.

Pesatori said the unit is profitable, even though it is not a high-margin business. "It could be a multibillion [dollar] contributor if Digital plays its cards right," said Jonathan Eunice, an analyst at Illuminata in Hollis, N.H.



## Commentary

Jeffrey Henning

# PowerPC not living up to promise



Apple appears to be successfully making the transition from its Motorola 680X0 Macintosh computers to PowerPC Macintoshes, having sold 145,000 units in the

last quarter. Customers are, for the most part, delighted with the PowerPC Macintoshes' emulation of 680X0 applications and the speed of native applications, if a little disappointed with the performance of Windows emulation. PowerPC Macintoshes will be a success, but Apple is missing its opportunity to become an open systems vendor.

Apple is overlooking the chance to set standards with the PowerPC Macintoshes: first, to create a cohesive hardware platform, and second, to build a vibrant collection of native PowerPC applications.

### Unified PowerPC a myth

Apple, IBM and Motorola talk about the PowerPC as if it were a single platform. A unified PowerPC is as much a myth as a unified Yugoslavia once was; the partners have Balkanized PowerPC. There's an Apple PowerPC Macintosh, an IBM PowerPC RS/6000 and the vendor-independent PREP (PowerPC Reference Platform) architecture. Contrast this with what is popularly referred to as the Intel platform, an industry-standard architecture introduced by IBM but expanded upon by many third parties, enabling the same software to run on thousands of machines from hundreds of vendors.

By failing to develop a unified platform, IBM, Apple and Motorola are splintering their already small market, confusing users and discouraging developers from supporting PowerPC. To dramatically expand its market share, as opposed to merely satisfying its installed base, Apple needed to have taken more of a hand in forging PREP. As the volume leader of PowerPC, Apple should have had a strong bargaining position to win its way at the negotiating table and should have pushed to create a PREP platform to which it could migrate all of its Macintoshes. A unified PowerPC architecture would have made a formidable competitor to Intel, leveraging as it would have PowerPC's superior price/performance. By squabbling amongst themselves, the PowerPC partners are their own worst enemies.

Apple is not just missing opportunities in the hardware arena. While Apple will show up on corporate users' radar

scopes now that the PowerPC can run Windows applications, this capability risks torpedoing Macintosh application developers. As the hardware progresses and Windows is used on more Macintoshes (the current requirement for 16M bytes of memory is daunting), many developers will decide they don't need to create Macintosh versions of their Windows applications — interested Macintosh users can simply run their Windows application in emulation mode.

This submerges the desire of many Macintosh users to rise above Intel X86 performance levels, since running Windows applications in emulation means that users miss out on the performance benefit of the PowerPC microprocessor. Many users will settle for this if it enables them to run specialized vertical market Windows applications that would not be available to them otherwise.

### Fear of the few

However, wherever possible, users will flock to native applications. Even as "good money drives out bad," native applications will drive out the Windows immigrants wherever they go head-to-head. The fear for the PowerPC purchasers is that there will be too few native applications. Right now, Apple has persuaded only 150 of its 2,000 independent software vendors to develop native PowerPC software; when even a company with the battle chest of Lotus decides it can't devote resources to PowerPC Macintoshes, the Macintosh platform will suffer.

Apple must take the blame for this. It should have created a C development environment that would have enabled independent software vendors to easily develop for both Macintosh and Windows environments. Apple has long promised this with a package named Bedrock, but over the years Apple has fumbled Bedrock's strategy and delivery dates, playing Fred Flintstone to Symantec's Barney Rubble as the partners tried to bring the product to market.

### It could have been better

By failing to ship Bedrock, Apple ignored its developers' desire to support Windows, like a parent teaching abstinence rather than recognizing the reality of what was going on behind its back. Apple should have realized sooner that it could no longer rely on its applications to differentiate its operating system but would have to rely more on providing innovative operating system services such as QuickDraw GX and the Apple Open Collaboration Environment.

Yes, Apple has sold 145,000 PowerPC Macintoshes, but it could have sold more PREP Macintoshes had it laid the groundwork properly and enabled its software partners to develop for the Macintosh and Windows simultaneously. Apple will succeed, but its future looks much like its past: great technology but missed opportunities.

Henning is associate director for personal systems and software publications at BIS Strategic Decisions. He can be reached at 649-6654@MCI-mail.com, and on MCI Mail at 649-6654.

# A new option for data analysis

By William Brandel

Noting that analyzing data has become as complex for users as getting the data from the database, Computer Concepts Corp. in Bohemia, N.Y., has rolled out what it claims is an easy-to-use data access and analysis product.

Unlike database tools, which require a degree of programming and customizing, D. B. Express for Windows Version 2.1 enables users to analyze data through multidimensional views. The product offers users a menu bar interface from which they can determine what type of view they need for the data analysis they are performing.

"The product is an end-user application, not a tool," said Howard Dresner, an analyst at Gartner Group, Inc. in Stamford, Conn. "It lets the user perform custom views but does not let them customize the view."

Using D. B. Express for Windows 2.1, end users can perform imports of single tables from most databases with a single mouse click. This is particularly useful at sites where end users, who often lack programming capabilities, need to access and manipulate data themselves.

The product also makes it easy for end users to analyze and present data. It in-

cludes dynamically linked graphics, which the user can manipulate using a menu bar interface. It also includes an integrated report writer for publishing query results.

"Our analysts are using it, and it only took about an hour of training to get them going," said James Hanley, vice president and assistant development manager at James Capel, Inc., an international brokerage house based in London. "It has been helpful in their efforts to do charting or to query the data. The bottom line is that it is very user-friendly."

### A bevy of choices

The product comes in two configurations. The Personal Edition provides direct access to Xbase, Borland International, Inc. Paradox and ASCII tables. The Office Edition provides connectivity to more than 30 relational databases, including Borland's dBase, Microsoft Corp.'s Excel and FoxBase/FoxPro, Lotus Development Corp.'s Approach, The Ask Group, Inc.'s Ingres, Oracle Corp.'s Oracle and Sybase, Inc.'s SQL Server.

The Personal Edition carries a list price of \$195 per license, while the Office Edition carries a \$395 tag. Both are scheduled to be available next month.



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## Video compression

# Future technology edges toward present

By Michael Fitzgerald

The world of video compression sounds weird. It is populated by products with strange names such as Indeo, Captain Crunch and the PEGs, M and J. They are very different and very likely a part of the future.

These names, along with SuperMac Technology, Inc.'s Cinepak, represent the main efforts to get television-smooth images across the computer screen.

MediaVision's Captain Crunch, Intel Corp.'s Indeo, Moving Photographic Experts Group (MPEG) and Joint Photographic Experts Group (JPEG) offer different ways to compress and decompress video images.

## Working for acceptance

Two of them, MPEG and JPEG, are accepted ANSI and International Standards Organization (ISO) standards. The others are trying to build strength in the market.

"MPEG will serve a role similar to TCP/IP in the networking industry — it guarantees interoperability while still letting vendors differentiate his products," said John Chun, vice president of

marketing at FutureTel, Inc., which recently introduced a compression board.

The compression market is small now and matters mostly to people who do professional presentations, high-level stuff that needs costly hardware and software. For the typical corporation, full-motion video "is too expensive, and there's nothing practical to use it for right now," said Victor Mutnick, corporate vice president of information systems at New York Life Insurance Co.

Those technologies that are less expensive, such as Indeo or Apple Computer, Inc.'s QuickTime, can convert the analog images of full-motion video into digital images that can be played on a PC, but they run slowly and in tiny boxes on the screen.

Because of the slow speed and low resolution of the images, it makes little

sense for a user to attach a personalized instruction that includes his face and voice as part of a message. Analog-to-digital compression takes up a lot of

Compression presses on		
REAL-TIME COMPRESSION OFFERS USERS A MUCH FASTER IMAGE BUT AT A MUCH HIGHER COST		
	REAL-TIME COMPRESSION	NON-REAL-TIME COMPRESSION
Compression ratio	User defined	User defined
Image speed	Immediate; done by dedicated processor	Depends on the system CPU
Storage	Requires 1G-byte hard drive storage for one minute	Requires 1G-byte hard drive storage for one minute
Price	\$10,000 and up	Starts at \$500

room on hard drives — one minute of full-motion video, with sound, needs one gigabyte of disk space.

But several things are happening that might start to change this.

"This is the same issue of using color eight or 10 years ago, particularly color printers — the technology was there, but it was very expensive," said Jack Gold, an analyst at Meta Group, Inc. in Westport, Conn. Gold predicted that compression and decompression will become a regular low-cost feature of systems in

the next few years.

Currently, low cost is a relative thing; typically, the equipment needed for television-quality images costs between \$20,000 and \$30,000. So it was a major breakthrough when FutureTel in Sunnyvale, Calif., last week released PrimeView, a \$9,995 board that does real-time MPEG compression. Based on a RISC chip from C-Cube Microsystems, Inc., the board targets software developers.

That \$10,000 price tag is not peachy for the average desktop user of full-motion video, however. FutureTel officials expect their board, which complies with the MPEG 1 standard (MPEG 2 is not yet an official ISO standard), will drop rapidly in price, particularly as competitors bring their products to market.

## A developing market

But the market is still developing even at the component level. Pixel Semiconductor, a division of Cirrus Logic, Inc., recently came out with three processors, one that does digital-to-analog conversion, another that does analog-to-digital conversion and one that is a real-time digital video processor that will both decode and encode TV signals to enable them to run on a PC.

Missing from the announcement was a compression chip. Pixel does plan to introduce a compression chip at some time, said Gerald Wineinger, Pixel's director of marketing.

Compression is still so nascent that one player in the graphics market, Weitek Corp., took no chances with its recently debuted Power 9100 graphics controller, which works with MPEG, JPEG, Captain Crunch, CinePak and Indeo.



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## Personal digital assistants

# Compaq's Mobile is immobile

By Michael Fitzgerald

HOUSTON

Compaq Computer Corp.'s Mobile Companion project has gone almost immobile as the company decides just what a Mobile Companion should be, officials said recently.

Mobile Companion was announced with much fanfare last September as the result of a partnership of Compaq, Microsoft Corp., Intel Corp. and VLSI Technologies, Inc. The project, essentially the Microsoft/Intel world's response to Apple Computer, Inc.'s Newton and several other personal digital assistants (PDA), was delayed earlier this year, in part because of Newton's troubles in the market. Now, Compaq says the product will not be released until 1995.

"We are in a reevaluation state, and we do not have a specific, defined project we are working on," said Lorie Strong, vice president of portables marketing at Compaq. Strong said Compaq "believes we will still end up with a product that runs WinPad" but is not sure what it will be. WinPad is a version of Microsoft's At Work for Handhelds software, which gives office equipment the ability to run

scaled-down versions of Windows.

Besides Newton's troubles, officials decided to rethink the design of Mobile Companion because it lacked a keyboard and because Compaq could not find a way to sell it for less than \$1,000.

Strong said good sales of Compaq's Contura Aero subnotebook added to the indecision over what Mobile Companion should be. In many ways, Aero achieved much of what Compaq thought a "mobile companion" product would do, she said.

## Gadgets are no good

Janet Cole, an analyst at Dataquest, Inc. in San Jose, Calif., said Compaq was smart to wait. Many of the PDAs on the market are mere "gadgets," she said, and "the market needs more than just the gadgets — it needs a wireless infrastructure. Without wireless communications, what good are these things?"

Compaq's period of meditation means it will not beat some of its competitors to market. Several other companies, among them Toshiba America Information Systems, Inc. and AT&T Global Information Solutions, the former NCR Corp., are expected to release mobile companion-type products this year.



## Speech recognition

# Kurzweil is first with dictation product

By Ellis Booker  
CHICAGO

Kurzweil Applied Intelligence, Inc., an innovator in the speech-recognition market a decade ago, has begun shipping Kurzweil Voice, a general-purpose speech-recognition dictation product, and the first to run under Windows.

So-called "command and control" speech-recognition systems are already available under Windows. These products allow users to control application programs and a variety of Windows functions with voice commands.

### First in line

But Waltham, Mass.-based Kurzweil is the first with a Windows-based dictation product. The speaker-independent system comes with either a 30,000- or 60,000-word active vocabulary and uses acoustic recognition models and spelling to boost its vocabulary to 200,000 words.

As important as its Windows support is the "very aggressive pricing" of the product, according to Jeffrey Tarter, publisher of "Soft Letter," a software industry newsletter in Watertown, Mass.

Kurzweil Voice sells for \$995. It in-

cludes a digital signal processor sound board and a microphone.

Still, Tarter said he wonders whether voice recognition, which Kurzweil and other vendors have sold successfully into vertical markets such as health care, can be made attractive for the broad consumer market.

"It's still an open question if there will be hundreds of thousands of people paying \$1,000 to talk to their computer," he said.

Tarter noted the danger of the "Star Trek syndrome," whereby the expectations of the market outpace what a technology — such as voice recognition or pen-based computing — can deliver.

But Raymond C. Kurzweil, chairman and co-chief executive officer, said he is optimistic about the prospects of speech recognition and its synergy with another technology: Mobile computing.

"Although our immediate focus is on

reaching all of the Windows-based desktops in business and professional environments, I fully expect [our product] to be an integral part of mobile computing solutions within the year," he said.

**"I fully expect [our product] to be an integral part of mobile computing solutions within the year."**

—Raymond C. Kurzweil

Kurzweil Voice for Windows Release 1.0 requires an Intel Corp. i486DX 33-MHz or higher microprocessor with either 8M or 16M bytes of memory and 30M bytes of hard disk space. The first version of the product supports the Kurzweil sound board and microphone, although future versions will accept hardware from third parties.

Meanwhile, Dragon Systems, Inc. in Newton,

Mass., plans to introduce a Windows version of its DragonDictate line of speech-recognition systems this summer. In March, Dragon released three DragonDictate systems for DOS, ranging from a 5,000- to a 60,000-word vocabulary system.

## Briefs

### HP raises the printer bar

Hewlett-Packard Co. took a leap in desktop printer technology as it unveiled two laser printers that produce 12 pages per minute, up from the previous limit of eight pages per minute. The LaserJet 4 Plus, priced at \$1,839, and LaserJet 4M Plus, priced at \$2,479, yield 600-by-600-dot/in. resolution. The former is for workgroup use, and the latter is for mixed computing and Macintosh environments.

### Compaq, PictureTel team

Compaq Computer Corp. has signed a deal with PictureTel Corp. to build videoconferencing capabilities into its desktops, according to sources close to both companies. Desktop videoconferencing is expected to appear in the late third or early fourth quarter in Compaq's recently announced high-end DeskPro/XL. Compaq will be able to support this through the VESA Advanced Feature Connector, a standard graphics-to-video subsystem connector.

# Word processor fixes arrive

By William Brandel

Two of the industry's most popular Windows-based word processors are in need of a little shoring up, according to their manufacturers.

In recent weeks, both Microsoft Corp. and WordPerfect Corp. have announced that bug fixes are required for their word processors, and they have released patches for the faulty products.

Last week, WordPerfect made available WordPerfect 6.0A for Windows. While the interim release includes some bug fixes, it also offers new features (see chart).

A WordPerfect spokeswoman said she could not recall any specific bugs in the product but said the new version was more reliable and stable than the 6.0 release.

### Big freeze

"The biggest problem was stability," said Marilyn Rubin, manager of word processing at a Chicago-area insurance brokerage. Rubin said 90% of her company's end users use WordPerfect for text processing. "You just never knew when it was going to freeze."

Rubin said she was very pleased with the interim release of the product. In addition to performing better, it takes up approximately 6M bytes less storage space, she said.

Meanwhile, Microsoft is sorting out a

number of its own bug fixes. After posting a maintenance release for Word for Windows 6.0 earlier this year, Microsoft has now reported that a fix is required for some customers who purchased upgrade versions of Microsoft's Office Standard 4.2. The bug has been making it difficult for users to complete the install process. Microsoft has posted a work-

### More than a bug fix

WordPerfect throws in more features with the WordPerfect 6.0A interim release

<b>QuickCorrect:</b>	Corrects mistyped or misspelled words
<b>Transition Advisor:</b>	Offers help for WordPerfect for DOS users, as well as other word processors
<b>OS/2 Integration Option:</b>	Gives WordPerfect 6.0A users full drag-and-drop capabilities for the OS/2 Workplace Shell
<b>Uninstall:</b>	Lets users uninstall unnecessary components of WordPerfect 6.0A
<b>Layout:</b>	New document templates
<b>Interface:</b>	New button bars

around on CompuServe.

This summer, Microsoft will post a maintenance release for its Office 4.2 product suite that addresses Excel and PowerPoint, said Robbie Bach, group product manager for Office. This release will include support for the Notes/FX development interface, Bach said.



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## New Products

MicroNet Technology, Inc. has introduced the Advantage Series, a line of SCSI data storage products for the Macintosh.

According to the Irvine, Calif., company, the series consists of internal and external hard drives with capacities ranging from 170M bytes to 1G byte; SyQuest

Technology, Inc. removable drives; internal and external rewriteable optical drives with capacities of 128M and 230M bytes; CD-ROM; tape backup systems; and accessories.

The line offers removable media systems that range from 44M bytes up to 270M-byte, 3 1/2-in. and 200M-byte, 5 1/4-in. cartridge drives.

Prices start at \$299.

► **MicroNet Technology**  
(714) 453-6000

Disk Technologies Corp. has introduced the RoadRunner Express XD Series, external hard drives that offer support for the Enhanced Parallel Port, Extended Capabilities Port and standard and bidirectional parallel ports.

According to the Winter Park, Fla., company, the plug-and-play external RoadRunner Express Series works with any desktop, notebook or subnotebook computer with a parallel port.

Available in 210M-, 340M- and 540M-

byte units, the RoadRunner Express XD Series weighs 1.8 pounds and offers a transfer rate of 1M byte/sec.

Prices range from \$495 to \$795.

► **Disk Technologies**  
(407) 671-5500

Platinum Software Corp. has introduced FRX for Windows, software that provides flexibility in building and executing corporate financial reports.

According to the Irvine, Calif., company, FRX for Windows runs under Windows 3.1 and offers an intuitive graphical user interface, multiuser capability and context-sensitive, on-line help.

Users can perform unlimited cut, copy and paste operations.

The product is available exclusively for use with the General Ledger modules of the company's Sequel to Platinum, Platinum Premier and Platinum Series financial software products.

Pricing starts at \$3,500.

► **Platinum Software**  
(714) 727-1250

DataViz has introduced Version 2.5 of Conversions Plus for Windows.

According to the Trumbull, Conn., company, Conversions Plus contains a Macintosh disk-mounting utility and a full-file translation library.

Conversions Plus for Windows houses file translation combinations for popular word processing, database, spreadsheet and graphics programs.

Additional translation paths are included, and the product provides bidirectional translations between Macintosh and PC programs, as well as file translations among PC programs.

Conversions Plus Version 2.5 costs \$149.

► **DataViz**  
(203) 268-0030

Attain Corp. has introduced In Control 3.0, a planning and organization tool that helps users plan by combining a flexible, multicolumn outline with daily, weekly and monthly calendars.

According to the Somerville, Mass., company, In Control 3.0 features a multicolumn action outliner to track and manage activities, daily views that show all activities for a specific day, a daily schedule that displays appointments by time slots and instant lookup to access phone numbers and addresses.

The product also provides instant access to popular database and contact management programs.

In Control Version 3.0 costs \$129.95.

► **Attain**  
(617) 776-1110

## Product short

Associated Data, Inc. has introduced the Time Accountant, a fully automated time and attendance system. Features include automatic calculation of hours worked based on specific company pay rules and the ability to generate an electronic time card on-screen. The system comes equipped with DOS-based software. Cost: \$995. Associated Data, East Providence, R.I. (401) 438-5500.

Client servers, giant servers and mainframes alike will all accommodate a data warehouse, given the right software. That's where Bill Inmon comes in.

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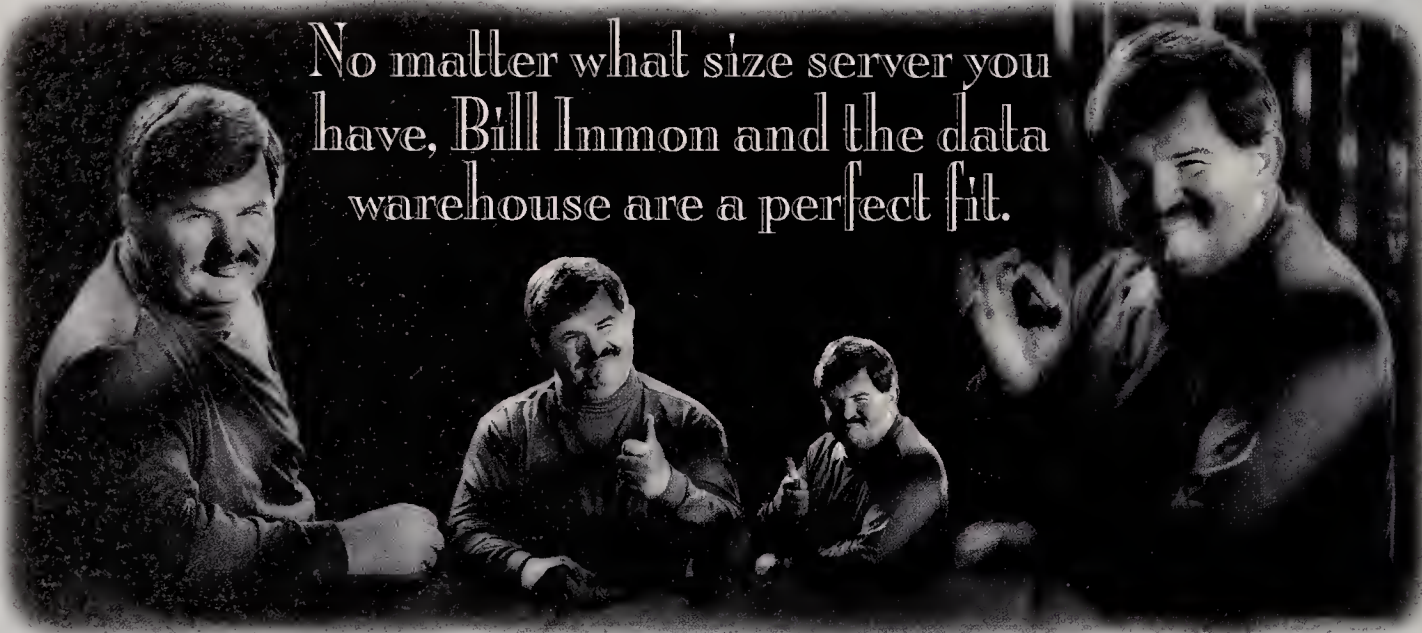
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directory, so you can track information as it changes over time.

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Bill Inmon, creator of the data warehouse.

proving indispensable to high-level decision makers. Now he's taken Warehouse Manager one step further, making it fully compatible with IBM, HP, DEC, NCR and most other servers running Oracle, Sybase, DB2 and RedBrick databases.

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forms data from current operational and legacy systems into accessible, historical information. Data is automatically extracted, summarized and restructured, then loaded into either a mainframe or server environment.

Warehouse Manager won't disrupt operational activity. It simply scans and copies information before moving it into the data warehouse. Data sweeps take little time and are conducted when processing activity is minimal. To modify the warehouse, just change a few parameters. The data is automatically regenerated in minutes, a feature that speeds up prototyping.

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is structured within the warehouse. And they eliminate the time-consuming task of developing a custom data model.

Building a data warehouse will take longer than you can afford to wait, unless you use Bill's shortcut. Since Warehouse Manager is fully automated, you won't waste time writing code by hand or learning new languages. And with your staff spending more time analyzing information, and less time searching for it, your productivity can increase tenfold or more.

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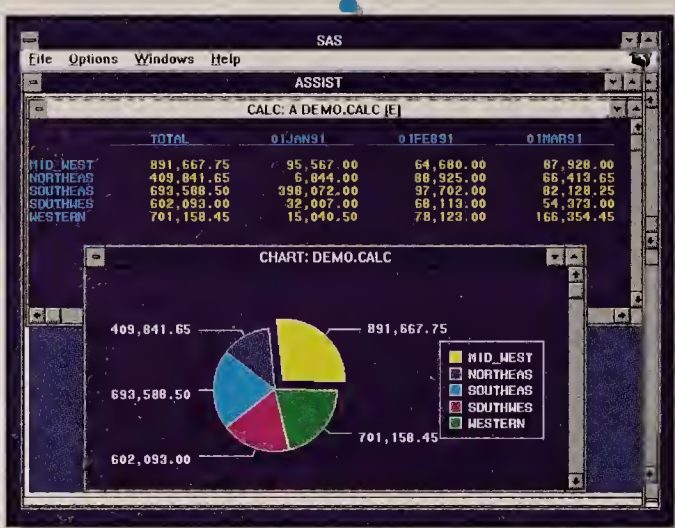
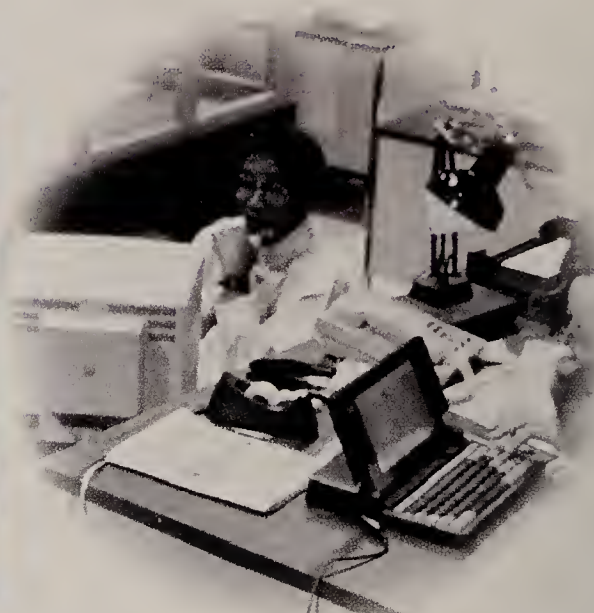
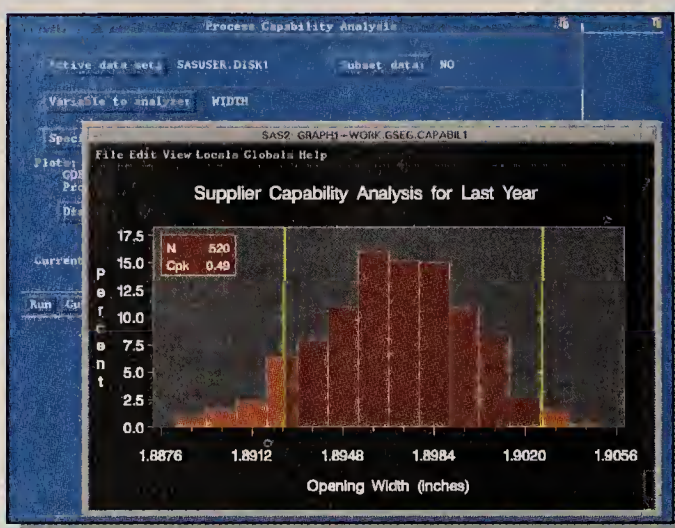
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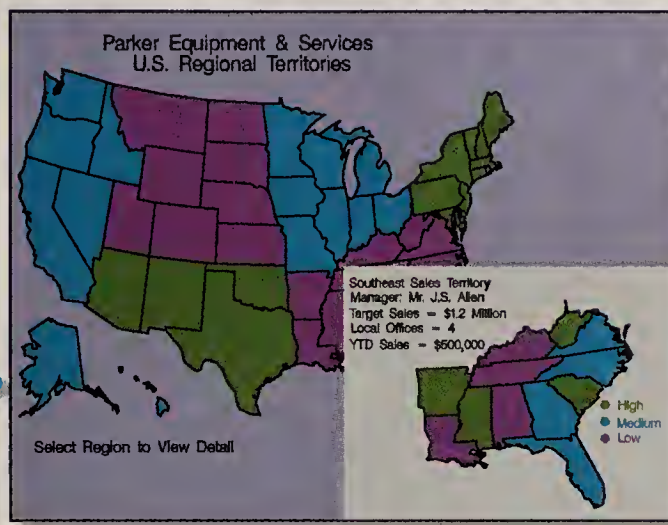
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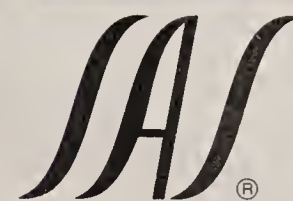
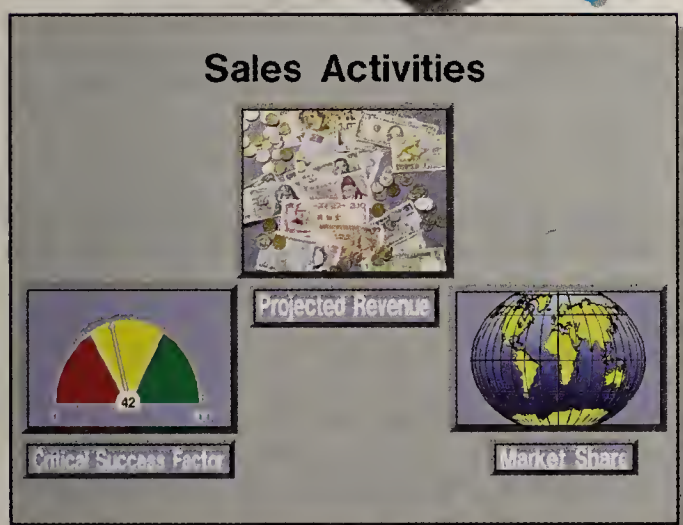
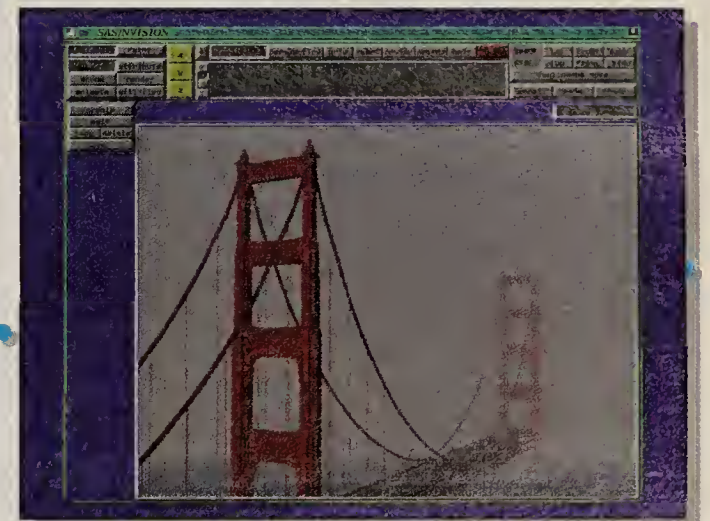
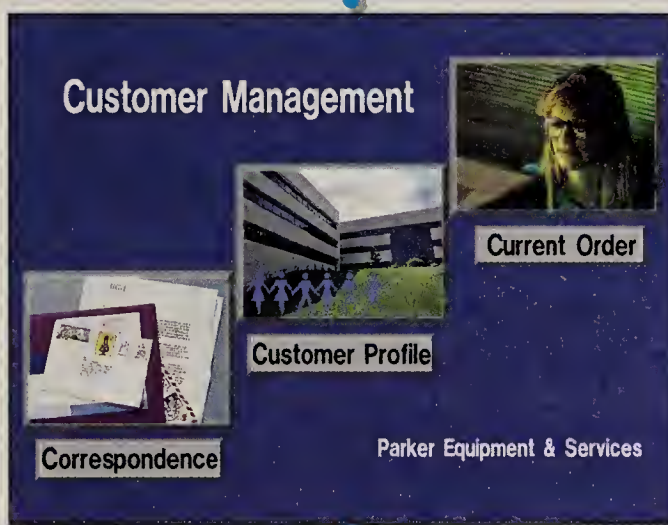
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## Commentary

David Coursey

### A bad time to buy E-mail



If someone is pressing you to install a new E-mail system, please photocopy this column — you have my permission — and send it to the offending, though well-intentioned, bumblehead.

Dear Bumblehead:

I am writing on behalf of (fill in your name here) to explain why your request for a new E-mail system is, well, ahead of its time. The problem is that the three major vendors of LAN-based mail systems are suffering major growing pains, and it will be early next year — at the earliest — before things settle down.

It used to be easy to choose an E-mail system: If you had Novell NetWare, you bought CC:Mail — unless, for some unfathomable reason, you were running Message Handling Service, in which case you bought whatever the person who installed the network sold you. Macintosh users, for the most part, got CE Software's Quick-Mail, and Unix-heads got what they had coming to them.

This E-mail-by-default selection process worked pretty well until we got big heads and decided that E-mail wasn't just mail, it was electronic messaging. This shift, which is under way right now, stopped mail development in its tracks on both the PC and the Macintosh. Which explains why we were treated to the (eventually meaningless) mail API wars. Remember the

Coursey, page 60

## Sybase or Microsoft?

### Split between co-developers divides SQL Server customer base

By Kim S. Nash  
SAN JOSE, CALIF.

Who gets custody of the kids now that Sybase, Inc. and Microsoft Corp. have split up over their codeveloped SQL Server database?

That was a big question for attendees of Sybase's international users group meeting held here recently.

For shops planning to install Microsoft's Windows NT to run client/server programs, a reliable answer about where to buy databases is not a simple proposition, according to two dozen users and analysts interviewed before and during the show. Factors such as technical support and pricing weigh heavily — and have divided what had been a cohesive SQL Server user base.

Uneasiness about the split focused on the following three issues:

- Whether Microsoft will build heavy-duty transaction-processing features, such as data replication and support for high-end parallel processing, into its version.
- Whether Sybase will cut prices or offer more price-point options.
- Whether both vendors will keep promises about continued compatibility among SQL Servers.

"We're pleased with NT, but this [split] really clouds the issue," said Dan Chorney, a database analyst at Chevron Canada Ltd. in Vancouver, British Columbia. The company wants to drop IBM OS/2 systems in favor of Windows NT and is now collecting bids from Sybase and Microsoft for database contracts.

Microsoft and Sybase last month amended their 1987

pact to share development of the SQL Server database. The move allows each firm to take its respective products in different directions.

Complicating Chevron Canada's decision is the fact that many of its applications were written with APT, Sybase's character-based development tool. "As Microsoft builds on [SQL Server], APT programs will be less and less compatible," Chorney said. "But if Sybase keeps its current pricing structure, that could be a deciding factor for us, too," he added.

#### Sybase plans improvements

In keynote speeches to several hundred user group attendees, senior Sybase executives promised product and support improvements this year and next. Tighter security and better systems management features are due for Sybase SQL Server during the next year, said Mark Hoffman, Sybase's

chief executive officer.

But in building such enhancements, Sybase will propel SQL Server further away from Microsoft's version. The SQL Server plans outlined by both companies for Windows NT versions of the databases are forcing NT users to choose between two vendors they once thought would be working together, said Richard Finkelstein, an analyst at Performance Computing, Inc. in Chicago.

Some users who bought SQL Server from one vendor thought they were buying smooth scalability to products from the other vendor, according to Greg Hamer, a database technician at Bankers Trust Co. in New York. Scalability "is no longer a given if Microsoft and Sybase

Sybase, page 56



## NetWare version of Legent's Paradigm in the offing

By Rosemary Cafasso

Legent Corp. plans to ship a Novell, Inc. NetWare version of its Paradigm problem management software, which it hopes will inch the company closer to its goal of providing a series of systems management tools across heterogeneous networks.

Legent also said it is preparing gateway products to link Paradigm to existing host-based problem management products such as IBM's Infoman. However, company officials would not provide a delivery schedule.

#### Wireless, too

In a separate announcement, Legent last week said McCaw Cellular Communications, Inc. will extend its use of Paradigm to its Airdata wireless network service.

McCaw currently uses Paradigm for its internal data network and the Airdata operations center. The software will be used by Airdata administrators to better manage the wireless service, the companies said.

Paradigm is a problem management and trouble-ticketing system that tracks system trouble or failures and then dispatches service jobs. It also maintains activity records. The software was developed by a small company called Networx, Inc., which Legent acquired last year.

IBM uses the Paradigm technology as part of its NetView/6000, and Hewlett Packard Co. last month said it would resell the software.

Last week, Legent officials said the plan is to ship versions of Paradigm that support Legent's Cross Platform Environment (XPE) architecture to provide this integrated environment.

#### Middle management

XPE is Legent's strategy for providing several systems management functions that can be supported centrally and handle different platforms.

The XPE-enabled versions of Paradigm are supposed to ship with Legent's

recently announced middleware product, XPErtware. This would allow the different Paradigms to interact and report to a central Paradigm management console.

"Legent's whole XPE strategy gets some benefit from [the Novell announcement] in that it gives Paradigm and its integration strategy more visibility," according to Rick Villars, director of network management research at International Data Corp. in Framingham, Mass.

David Ward, a Legent customer and manager of worldwide network operations at American Greetings Corp. in Cleveland, said he is interested in the recent Paradigm for NetWare announcement.

However, Ward also wants to see what Legent will deliver on the host gateway front before he commits to Paradigm.

"If I can't do host-based problem management with it, I am sure not going to go

out and bring in a completely different distributed problem management system," Ward said. "We have IBM's Infoman ... and we can't live without it. You have to bridge the distributed world to the legacy problem management systems."

#### Committed support

Christopher Slat, a Legent vice president, said the company is committed to supporting non-Ligent host products in a Paradigm environment.

In addition to the plans for gateways, Legent is publishing application programming interfaces for XPE that could be used to link customers' homegrown systems to Paradigm, Slat added.

The company said it will sell Paradigm for the Novell platform at a discounted rate of \$4,995 through the end of the year. The price includes a license for five Windows clients, Unix server software, an administrative client and an interface to Novell's NetWare Management System.





PC servers

# HP rolls out line of low-end servers

Products' competitive prices and scale-up opportunities attractive to users, but commonplace

By Mark Halper  
PALO ALTO, CALIF.

Hewlett-Packard Co., which in the last two years has transformed its PC presence from an afterthought into a major player, recently continued its forward press by unveiling low-end servers that put it in the price-performance vanguard.

Pricing for the HP NetServer LC server family starts at \$2,629. This puts HP at the forefront of entry-level offerings from competitors such as Compaq Computer Corp. and Dell Computer Corp., whose products begin in the \$3,000 range, said Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass.

HP said the three-model LC series will ship next month, one with an Intel Corp. 66-MHz Pentium processor and two with 486 processors — a DX2/66-MHz 486 processor and a DX4/100-MHz 486 processor, which can be upgraded to Pentiums

(see chart). The series supports the Peripheral Component Interconnect (PCI) bus.

All three are equipped with six expansion slots — one PCI, one PCI/Extended Industry Standard Architecture (EISA) and four EISA — and five storage bays. An external EISA disk array is optional.

The company is selling two network management software products for the series: NetServer Remote Assistant for \$495 and NetServer Assistant 2.0 for \$999.

## One of many

Although some users said they are impressed with HP's aggressiveness, some viewed the company's low-priced servers as simply the latest in what has become commonplace price reductions.

"I'm very happy for HP, but this is getting a little tiresome," said Sam Ellis, associate vice president of information

services at Portland Community College in Oregon. "I don't want to sound cynical, but I'm a little burned-out on the PC marketplace. Every week someone has something that's bigger or faster."

Isaac Blake, technical support and

processing schemes and capable of supporting a larger number of nodes.

This is because multiprocessors would reduce the number of servers overall, and the cost of administration and support goes down as the number of boxes decreases, he said.

## Bigger is better

Dave Brolsma, manager of information systems at Chrysler Corp. subsidiary Acustar Electrical in El Paso, Texas, said even if he had a need for a server he would probably buy something larger than an LC to accommodate future growth.

Brolsma uses a number of HP servers now and paid about \$4,500 for an HP NetServer LM earlier this year.

While that model now supports six Windows clients on Novell, Inc.'s NetWare 4.0, he anticipates adding users in the next two years and taking advantage of its 60-node support, he added.

HP's NetServer LC SERIES		
MODEL	PROCESSOR	PRICE
4/66	DX2/66-MHz 486	\$2,629
4/100	DX4/100-MHz 486	\$3,129
5/66	66-MHz PENTIUM	\$4,629

systems manager for the city of Tempe, Ariz., commended HP for its attractive pricing, noting that it gives users an opportunity to scale up after an initial low-cost entry.

However, Blake noted, it may be more prudent in the long run for users to purchase high-end servers running multi-

# Sun overhauls workstations, cuts costs

Vendor takes on Pentium-powered PCs and high-end Unix competitors

By Jean S. Bozman

Sun Microsystems, Inc.'s spring revamp of its workstation product line has already boosted performance and cut prices for early users of the low- and high-end workstations.

Users said they are installing the low-end SPARCstation 5s as upgrades to low-end SPARCclassics and SPARCstation LXs and the high-end SPARCstation 20s as upgrades for older SPARCstation 10s. But early users of the SPARCstation 20 said they were surprised that the system's strong price/performance outpaced the SPARCstation 10 for substantially less money.

The SPARCstation 20 was announced in late March as Sun recast its entire workstation line [CW, March 28]. At the same time, Sun introduced the SPARCstation 5 as a replacement for the SPARCstation LX and cut entry-level SPARCclassic prices from \$3,995 to \$2,995.

## Users applaud

The overhaul in workstations, which collectively account for more than 75% of Sun's revenue, was welcomed by users looking for Sun to overtake price/performance levels set by other vendors.

Now some early users say Sun has done just that.

"I'm getting dramatically more performance for 10% less price" than older SPARCstation 10s, said Walter Herriek, manager of data operations at the University of California at Berkeley's Space Sciences Lab. "I don't think these machines will cause us to do things any dif-

ferently, but they will cause us to do things faster and better."

Many Sun shops have SPARCstation 20s on order or already installed as departmental Unix servers or powerful desktop workstations. The new workstations quench a pent-up demand for more powerful SPARC machines, industry analysts said. Volumes for the new units are running high, according to several Wall Street analysts.

## Powered and ready

With the two new products, Sun responded to challenges from PCs based on Intel Corp.'s Pentium chip and from high-end workstation rivals Hewlett-Packard Co. and Silicon Graphics, Inc. (SGI).

"The SPARCstation 5 was sorely needed because the 50-MHz MicroSPARC chip in the Classic and the LX was underpowered," said Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. The SPARCstation 5's new MicroSPARC II chip "keeps Sun within the range of performance of Pentium," he said.

On the high end, the SPARCstation 20 performed about 40% faster than the SPARCstation 10 for a typical configuration, while the cost of installing that level of performance fell by about 30%, he said.

Some early sites acquired multiple units as upgrades. Halliburton Corp.'s Energy Services technical center in Dallas installed 84 leased SPARCstation 20s last month for use as powerful single-

user workstations for computer-aided design (CAD) applications.

"Bringing in the SPARCstation 20s was cheaper than what we would have paid to renew our [existing] lease," said Dan Herron, a senior CAD systems specialist. The company expects to install more in coming months as replacements for older SPARCstation 10s and Sun IPX boxes, he said.

Northwest Natural Gas Co. in Portland, Ore., plans to install 250 SPARCstation 5s as clients for a customer service application that previously ran on an IBM mainframe. The Sun desktops will be used to access an SGI Challenge L server running a Sybase, Inc. relational database. The first units are already in place.

## Catch-22

Some industry analysts cautioned that Sun's aggressive workstation price/performance could gain market share for the \$4.3 billion company at the cost of higher profits.

"In terms of catching up with the crowd, Sun didn't pass by Digital Equipment [Corp.] or Silicon Graphics in performance," said Terry Bennett, a senior analyst at Computer Intelligence/Info-Corp in Beaverton, Ore. "But they're doing a great job of chasing prices down."

However, price competition could heat up because HP and IBM are both expected to announce new workstations this month, Bennett said.

The new workstations quench a pent-up demand for more powerful SPARC machines, industry analysts said.

# Sybase

CONTINUED FROM PAGE 55

are competing like this," Hamer said. "People will have to evaluate them separately."

Meanwhile, customers who have not chosen a database yet — but who are sure they want Windows NT — are looking for guidance. Show attendees said they were talking to Sybase about its System 10 for NT plans and weighing what they heard against Microsoft's stated goals.

The conventional wisdom is that Sybase runs rings around Microsoft in technical support and consulting services, particularly in tackling tough problems that arise with enterprise-level applications.

## What a deal

Microsoft, however, cannot be beat on pricing, users said. For example, Voest-Alpine Services Technology recently purchased three 64-user licenses from Microsoft for SQL Server for NT for \$7,000, according to Gerhard Karba, president of a consulting firm that handled the project. Price quotes from Sybase were "two or three times more," he said.

Sybase pricing depends on the number of users and class of hardware, which means that adding nodes to a given application could jack up database license fees.

"Sybase nickels-and-dimes me for every kind of [user] I want on the server," said Mike Fitzmaurice, MIS director at the National Association of Broadcasters in Washington. "Guess which company I'd rather do business with?"



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## TI enters client/server arena

By Lynda Radosевич

Texas Instruments, Inc. recently announced the first piece of a family of client/server applications for material management.

Called the Express Buy Catalog, the application helps companies create their own electronic catalog of inexpensive commodity items for which the companies have negotiated high-volume purchase agreements with suppliers. It allows end users to select the items that they need — a crate of pencils, for example — and order the item from the supplier for a fixed price using electronic data interchange (EDI).

The idea behind the system is to separate the process that companies use to buy high-cost strategic items from the process they use to buy low-cost items.

"Major customers have only one purchase process regardless of the value of the items. That's a waste of money," said Harry Tse, a director of research at The Yankee Group in Boston. "The government is famous for spending great sums on paper clips because the paperwork costs more clips."

The Express Buy Catalog could help reduce the paperwork and the number of steps in the approval process, Tse said.

TI first developed the system for internal use after realizing it used the same process for purchasing commodities as it did for more expensive items, said Les Wyatt, director of strategic marketing at the enterprise solution division of TI.

### Speeds process

That buying process took 16 days on average, from requisition to purchase order. By automating the approval process and order entry for prenegotiated low-budget items, TI dropped the purchase cycle to one day, he said.

Many companies are implementing similar systems on their own, Tse said, but he is not aware of other commercially available systems.

The Express Buy Catalog features include a Windows client interface, electronic catalog with on-line descriptions and prices, receipt and payment on supplier ship notice and purchase orders via EDI.

The system runs on a Hewlett-Packard Co. HP/UX server with Oracle Corp. or Sybase, Inc. databases or on an IBM MVS/CICS mainframe running DB2.

Pricing starts at \$160,000 and a major component of the system is TI's business process redesign consulting, which varies in price depending on the customer.

## Coursey

CONTINUED FROM PAGE 55

breathless trade media accounts of VIM vs. MAPI? I do, having written a few of them, and I now find myself wondering what all the fuss was about.

Lotus and Microsoft are re-engineering their mail platforms from top to bottom. At Lotus this seems to have been going on since the dawn of recorded history, while Microsoft has been at it merely since the birth of Christ. Microsoft's Enterprise Message Server should be in beta testing this summer and out the door by year's end. Lotus is committed to shipping Lotus Communications Server in about a year, although I wouldn't recommend holding your breath until the beta product really ships.

WordPerfect, which has carved out a nice niche with its Office E-mail/calendaring package, is in the throes of merging with Novell. This would make me a bit leery of plunking down big dollars until things settle down.

Of course, if your mainframe E-mail costs you so much that you positively have to do something right away, all three vendors offer good mail solutions — just

be aware that you might want to move to something else in 18 to 24 months.

You also ought to know that going with any of the Big 3 means choosing more than just E-mail. As I said, E-mail has become ambitious and now wants to "workgroup-enable" your desktop and build networked calendaring and personal information management applications. It

would also like to deliver your faxes, answer your phone, integrate with your voice mail and make sure you are wirelessly in touch 24 hours a day on a nearly global basis. And that's just for starters.

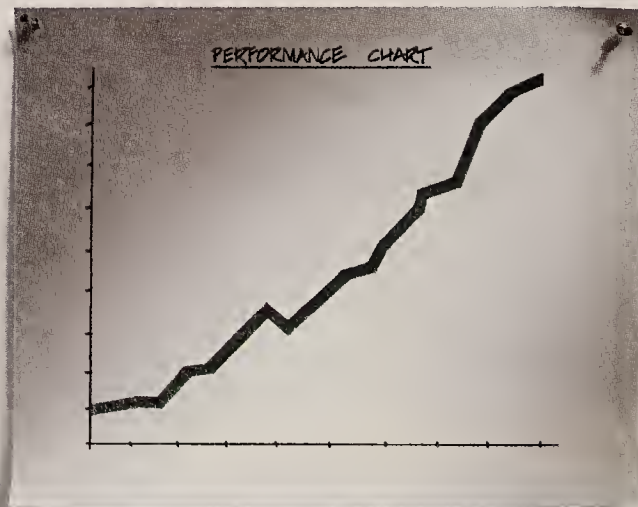
So committing to Microsoft's Mail means making a big commitment to the Microsoft way of doing things and, probably, to Microsoft applications and tools. Lotus makes it easy for CC:Mail customers to migrate to Notes and use its applications, while NetWare aficionados should find future releases of WordPerfectOffice to their liking.

All of this makes it a dreadful time to have to make an E-mail decision. If that's your lot in life, I really feel for you. A six-month vacation would probably be the best solution.

Coursey is editor of "P.C. Letter," a San Mateo, Calif., industry newsletter. His MCI Mail address is 558-4460.

**Committing to Microsoft's Mail means making a big commitment to the Microsoft way of doing things.**

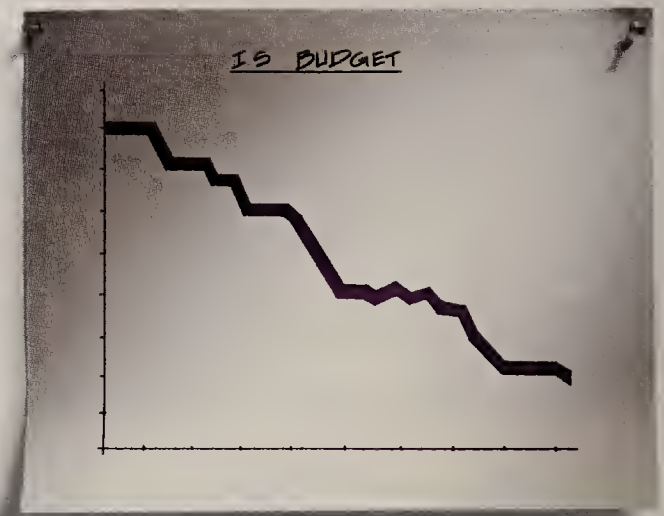
## Your Boss's Expectations



The executive committee has decided that your company's key to sustainable competitive advantage is a flexible information system — one that can speed up your processes and let you react quickly to change. Unfortunately, they've also decided to cut your budget.

Most likely, this leaves you with a mainframe system that can't fill the bill and an accounting department that won't take kindly to larger monthly bills.

## Your Budget



Of course, most members of today's executive committees have read an article or attended a seminar touting the wonders of economical mainframe alternatives and flexible client/server databases. So the answer probably seems simple — to them. But you've got to make it all work in the real world.

It's time to call in the team that knows how to do just that: Oracle and Hewlett-Packard. We've been developing products jointly for years — so you can be sure our systems work together for optimal performance and



## New Products

**Soleetek Corp.** has introduced Airlan/Parallel, a battery-powered wireless Ethernet adapter that attaches to any parallel port, enabling untethered mobile LAN connections and seamless compatibility between wired and wireless networks.

Airlan/Parallel offers integrated 9-in. cable plugs that fit any parallel port, including unidirectional, bidirectional and high-speed Enhanced Parallel Ports.

Airlan/Parallel costs \$699 and includes the adapter, installation software and optional power supply with a 2-ft. extension cable.

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**Carrera Computers, Inc.** has introduced the Cobra AXP 275, a RISC PC.

According to the Laguna Hills, Calif., company, the system is based on Digital Equipment Corp.'s Alpha AXP 21064A 275-MHz chip.

The Cobra AXP 275 is available in a variety of configurations and includes standard features such as a 128-bit memory bus, a 128-bit processor bus, two 32-bit Peripheral Component Interconnect buses (PCI) and three 16-bit XT/AT expansion slots.

The PCs also offer embedded motherboard devices that provide a PCI local bus SCSI-2 controller, a PCI local bus Ethernet controller, two asynchronous serial ports, a parallel port, a keyboard, a mouse and an IBM-compatible floppy disk drive.

Pricing for the Cobra AXP 275 ranges from \$7,995 to \$13,995.

► **Carrera Computers**  
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**UniPress Software, Inc.** has introduced LAN Manager for Unix for the IBM RS/6000, a product that allows AIX systems to act as servers for PC client applications on DOS, IBM's OS/2 and Microsoft Corp.'s Windows, Windows NT and Windows for Workgroups platforms.

According to the Edison, N.J., company, the product lets Windows users log in to the network from within Windows and use PC applications with point-and-click functionality to access and manipulate data on Unix servers and network resources with the Windows File Manager.

The product has extended interoperability with other LAN Manager servers.

LAN Manager for the RS/6000 is priced at \$2,995 for the Model 200 series, \$3,995 for the Model 300 series, \$6,995 for the Model 500 series and \$8,995 for the Model 900 series.

► **UniPress Software**  
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**Digital Communications Associates, Inc. (DCA)** has announced the Irma Workstation for Open Systems (IWOS), software that enables PC users to simultaneously access an assortment of host computers including those from Digital Equipment Corp. and Hewlett-Packard Co.

According to the Alpharetta, Ga., company, the product provides facilitated access to the Internet, information services, electronic-mail systems and corporate bulletin board systems.

IWOS interfaces with DCA's QuickApp for Windows 2.1, a communications middleware development tool that integrates information in host computers into new client/server applications.

The product costs \$295 and is available in a 10-user MultiPak for \$2,095; a 50-user MultiPak for \$6,895; and a 100-user MultiPak for \$11,595.

► **Digital Communications Associates**  
(404) 442-4264

**Acorn Software, Inc.** has introduced Squash for OpenVMS VAX and OpenVMS AXP.

According to the Cambridge, Mass., company, Squash is real-time data compression software that automatically compresses data as it is written and decompresses it as it is read.

The product creates a Squash disk,

which is a virtual disk that acts like a standard Digital Equipment Corp. OpenVMS VAX and AXP disk and supports operations such as mount, dismount, shadowing and striping.

Squash features a menu-driven user interface, flexible compression rates for changing technical and business requirements, data safety features and a read-only version for free distribution.

Squash is available for \$495 for workstations and \$795 for any VAX CPU.

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**Human Designed Systems (HDS)** has added full-motion video capability to its line of RISC-based X Window System terminals.

According to the King of Prussia, Pa., company, HDS Video enables Human Designed Systems terminal users to display full-motion video in up to four windows on their X terminal screen.

HDS Video supports analog and digital video with onboard compression and decompression. The product also supports the Intel Corp./Microsoft Corp. Indeo compression standard as a standard capability and offers Moving Photographic Experts Group (MPEG) 2 video decompression as an option.

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## EDI cures ills of hospital supply procurement

Baxter's legendary ASAP system moves aside

By Mitch Betts

■ **Baxter Healthcare Corp., whose proprietary ASAP on-line ordering system was one of the legendary "strategic information systems," is replacing ASAP with a standards-based package that will not be owned by Baxter.**

The resulting multicompany initiative will enable all hospital suppliers to compete for business on an equal technological footing — the exact opposite of ASAP's original mission.

OnCall EDI, the software for the new ANSI X12-based "open platform," was developed by electronic data interchange (EDI) software vendor TSI International Ltd. in Wilton, Conn. Suppliers already committed to adopting the system include Baxter for medical supplies; Bergen Brunswick Corp. in Orange, Calif., for drugs; Boise Cascade Corp. in Boise, Idaho, for office products; and Eastman Kodak Co. in Rochester, N.Y., for medical imaging systems.

What has changed is that hospitals will no longer endure different proprietary ordering systems for different suppliers, all of which copied ASAP. "Now hospitals

are standardizing, and they want one system" for ordering supplies from multiple vendors, said Dan Browning, director of EDI at Baxter in Deerfield, Ill.

"In the 1990s, competitive advantage doesn't come from the software but from the information you deliver to customers," Browning said. So Baxter will try to deliver information to its customers in a more timely fashion than its competitors. In essence, "Baxter will get out of the software business, turn it over to TSI and stick to its business of distribution," said Curtis Allen, lead buyer at St. Francis Hospital in Tulsa, Okla.

### Smarter systems

Another thing that has changed is the technology that suppliers and hospitals use. ASAP began as a mainframe-based ordering system linked to dumb terminals at customer sites, but the terminals were gradually replaced by desktop PCs as ASAP opened its doors to industry standards and other suppliers.

The OnCall EDI software, which runs on desktop computers with Windows as the user interface, includes EDI translation, a built-in database for tracking transactions and interfaces to material

management systems. It provides communications support for direct links between hospitals and suppliers, as well as dial-up access to third-party networks.

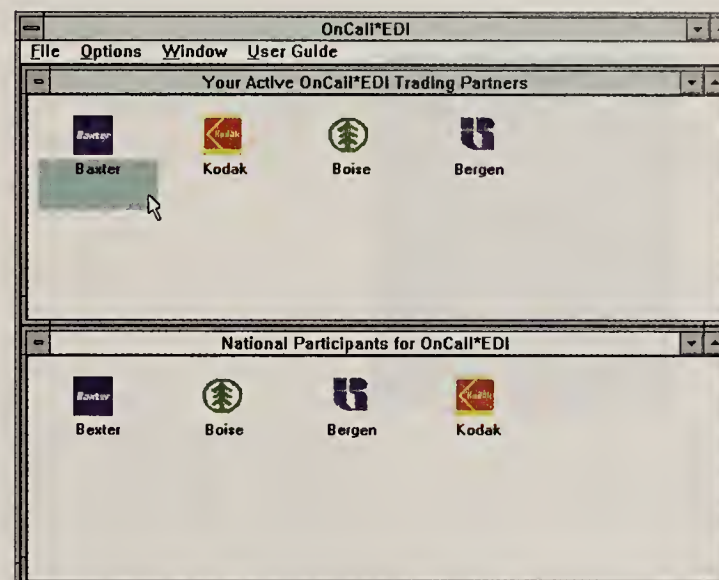
The initial release of OnCall EDI, scheduled for July 1, will handle purchase orders sent from a hospital to a

Complete pricing details were not disclosed, but a spokesman said the cost of the basic software will be shared by suppliers and hospitals. On top of that, hospitals will pay \$500 for each EDI translation kit tailored to a specific supplier.

Large and small suppliers will be recruited to adopt the TSI software and will, in turn, encourage their hospital customers to do the same, TSI said. The big challenge may be getting the whole industry to agree on one vendor's software package.

Migration from Baxter's ASAP to OnCall "will occur at the customer's demand," Browning said, which he expects to happen during the next two to three years.

Allen, who beta tested OnCall EDI, applauded the fact that the product will provide all 12 of the ANSI X12 transaction sets, compared



Baxter Healthcare is swapping its proprietary network for a standards-based system. The first screen looks like this.

supplier, purchase order acknowledgments, invoicing and catalog data. Other transactions, such as remittance data, will come later, a TSI spokesman said.

### Network support

## Novell launches 'exclusive' support system

By Elisabeth Horwitt

Novell, Inc. may find that its recently announced direct support offering, the Corporate Account Program (CAP), alienates some major customers.

CAP, introduced earlier this month, provides more kinds of direct and ongoing support to shops that spend at least \$250,000 on Novell products annually [CW, May 2]. Services include early information on products, participation in special interest groups and an on-site Novell account manager.

The program provides the kind of high-end, enterprise-oriented support that many Fortune 500 LAN systems managers are increasingly demanding from their primary client/server system suppliers, said David Passmore, president of Decisis, a Herndon, Va., consultancy.

### Who gets in?

But there is a catch: Customers that spend the required amount on Novell products each year do not automatically receive the Major Account designation that entitles them to the program's more high-level services. Indeed, Novell is offering its Major Account services only to companies that are deemed "strategic" by Novell account managers, according to Joseph Merengi, senior vice president of Novell's worldwide sales organization.

Even other major Novell customers may find them-

selves shut out. National Grocers Co. in Toronto, for example, has more than 1,200 NetWare nodes and was featured as a case study in Novell's Buyers Guide. But the grocery chain does not spend \$250,000 on Novell products per year.

"They are not addressing a fundamental [user support] need," said Robin McCubbin, network planning analyst at the grocery chain. "The guy running a 40-station network should be given the opportunity to pay \$20 grand and get the same level of support as someone buying all kinds of boxes of red" (Novell's color).

It particularly irked McCubbin that Novell is charging \$20,000 or \$50,000, depending on the level of service package chosen. At those rates, McCubbin maintained, Novell could afford to hire enough additional support people to provide the same services to medium-size accounts that are willing to pay the fee.

Novell spokesmen made no bones about the fact that the company created the program for its own benefit as well as that of key customers. Novell hopes to use the program to create an ongoing dialogue between its technical people and important customers. The customer gets advanced information about Novell's product directions; Novell gets feedback as to whether those directions are on target in terms of meeting big customers' needs.

This is exactly what major Novell customers such as

Hoechst Celanese Corp. are looking for. "I would rather deal directly with a group in Novell that is plugged into product people," who could come in and explain the benefits of emerging Novell technologies that were of interest to the customer, said Lorie Mouklas, project leader at the chemical firm in Somerville, N.J. Hoechst Celanese, for example, is interested in Novell's emerging multimedia and telephony offerings.

In return, Mouklas said, he would give Novell good feedback about how the company could better please users such as himself — by being more ready to link NetWare to Microsoft Corp. systems, for example.

### Drumming up business

Novell also intends to use CAP as a competitive weapon: Some qualified candidates might not have any Novell products at all but could be potential strategic customers, Marengi said. Indeed, some information systems managers in the process of choosing from among Novell, Microsoft and various Unix suppliers for their enterprise server platform said the vendor's enterprise support offering would be a major factor in their decision.

In addition, CAP will significantly extend the number of Novell customers who get high-end service, said Andy Huffman, vice president of Novell's newly formed Enterprise Solutions Division. Until now, only Novell's Top 100 customers received such services through Novell's Master License Agreement, he said. In contrast, CAP eventually will serve about 500 companies.





# Stackable hubs stack up to competition

Vendors unveil more robust features, scalability

By Stephen P. Klett Jr.

Stackables have been known as the dunces of the hub family since their conception. However, their IQ is rising rapidly — and they are beginning to give their chassis-based brethren a run for their money.

Networking vendors have leapfrogged one another, bringing more robust and scalable stackable platforms to market while retaining their main claim to fame: low prices.

3Com Corp. became the latest company to join the fray, unveiling its much-vaunted SuperStack platform last week [CW, April 25]. SuperStack will allow users to mix and match Ethernet, Token Ring, SNA and Fiber Distributed Data Interface environments, with an upgrade path to 100M bit/sec. Ethernet and Asynchronous Transfer Mode (ATM) technology.

During the past few months, Hewlett-Packard Co. and Lannet, Inc. have unveiled similar platforms, called AdvanceStack and LANstack, respectively.

The end result for users is that more functionality is being packed into a smaller package. This, in turn, provides a more flexible, cost-effective method of network concentration than chassis-based hubs for workgroup and remote-

office connectivity.

"Stackables are definitely taking on the life of a chassis-based product by taking in a lot of the functionality that used to separate" the two types of hubs, said Charlie Robbins, an analyst at Aberdeen Group in Boston.

For example, the ability to mix and match topologies, integrate switching and routing functionality and provide scalability with management down to individual ports, are features traditionally reserved for chassis hubs from vendors such as Cabletron Systems, Inc., SynOptics Communications, Inc. and Chipcom Corp.

Entry-level pricing for the newer stackable platforms is roughly \$75 per port, plus another \$20 or so per port for management features. This price makes the hubs ideal for budget-

challenged information systems managers who need a more affordable way to connect their workgroups than chassis hubs, for which entry prices range from \$200 to \$500 per port.

## Flexible, scalable

However, users said scalability is as important as price in their buying decisions. Some customers also said they like the added flexibility of stackables, which can be spread throughout disparate workgroups and remote offices,

daisy-chained in data centers or placed in wiring closets. In comparison, chassis hubs are generally relegated to wiring closet or backbone applications.

"We like stackables because they give us more flexibility in configuring networks and are definitely more affordable than chassis-based hubs, which are out of our reach financially right now," said Nancey Long, network manager for Montgomery County in Dayton, Ohio. The county likes stackables because they will allow it to start growing its network slowly, with minimum investment, while adding connectivity and features as needed. For example, the county may add 100M bit/sec. hub modules in a year or two to run an imaging application, Long said.

## Increased capabilities

Stackables "will definitely catch on when more intelligence — such as better management and higher speeds — are added because people are realizing that there is no longer an Achilles' heel to using these things," Robbins said.

Initially, stackables' lack of these features made users reticent to depend on them for production applications, he said. While chassis hubs remain better-suited for some higher-end, mission-critical applications, the current crop of new stackables is capable of handling most users' needs, Robbins said.

However, not all users are sure that more intelligent stackable hubs are necessarily a good thing.

"Sometimes, all I want is a basic network connection — like dumb terminals and mainframes, for example," said a

network administrator at an East Coast research laboratory that is beta-testing AdvanceStack. "While overall I like the HP product, the added intelligence also makes it more complex, which I'm not sure I like."

According to industry observers, HP's AdvanceStack raised the bar for stackables when it was unveiled in February. Analysts and users said they liked the platform's high port density — more than 700 ports in a single stack — as well as its ability to add routing as needed.

But HP may have to make room for 3Com at the top of the stackable heap because SuperStack offers users a higher level of redundancy and flexibility, analysts said. For example, 3Com offers a redundant power supply module for the SuperStack line that is for now unique.

"3Com is poised to do some serious damage in the stackable market," said Valentin Scribar, program director of global network strategies at Meta Group, Inc. in Reston, Va. "They appear to have covered all the bases."

However, according to a network administrator at an airline that plans to evaluate SuperStack, 3Com may have also had the most work to do.

"We were not happy at all with 3Com's first stackable; it really wasn't usable for us and it did not deliver everything they said it would. Hopefully this one will," said the administrator, who asked not to be identified.

SuperStack is available now with 12- and 24-port Ethernet and Token Ring repeater modules, as well as bridge and SNMP management modules.

**"3Com is poised to do some serious damage in the stackable market."**

— Valentin Scribar,  
Program Director,  
Global Network  
Strategies,  
Meta Group, Inc.

## High-speed networking

# Switched data service deemed success in trial run

By Ellis Booker

Details of the first large customer experience with Switched Multimegabit Data Service (SMDS) were released recently by a user group devoted to the high-speed networking technology.

The SMDS Interest Group, Inc. in Foster City, Calif., issued a white paper on 3M Co.'s experience with SMDS. In this case, it was an alternative to an overburdened T1 network to link the company's data center with remote facilities.

"We have three nodes in operation and a fourth scheduled in mid-May," said 3M lead analyst Joe Bumblis.

Two of the locations use the Class 1 SMDS service, which offers 4M bit/sec. service. A third node at 3M's data center uses the 10M bit/sec. Class 2 SMDS service. US West provided all the circuits.

Bumblis said the 4M bit/sec. service has proved itself capable of supporting 10M bit/sec. Ethernet traffic from one site and imaging traffic from another.

"We've seen more peak traffic, in the 3M bit/sec. to 3.5M bit/sec. range, during the nightly data backups," Bumblis said.

3M's metropolitan corporate network, which

is based primarily on the TCP/IP protocol, is composed of multiple T1s.

## Cost calculations

The 3M SMDS backbone is composed of Wellfleet Communications, Inc. routers, which totaled about \$50,000, with a \$16,000 data service unit (DSU) at each node.

For the 10M bit/sec. service, this approach is less expensive than one based on T1 lines, Bumblis said. "My calculations are that if you tried 10M bit/sec. LAN inter-networking with T1s, you'd need seven T1s and 14 DSUs, plus a couple of routers," he said.

However, it would take only three T1s to accomplish a comparable 4M bit/sec. network, Bumblis said, and the cost comparison in this case "is about a draw."

Looking forward, 3M would like to see SMDS adopted by some of its business trading partners in the Minneapolis/St. Paul area.

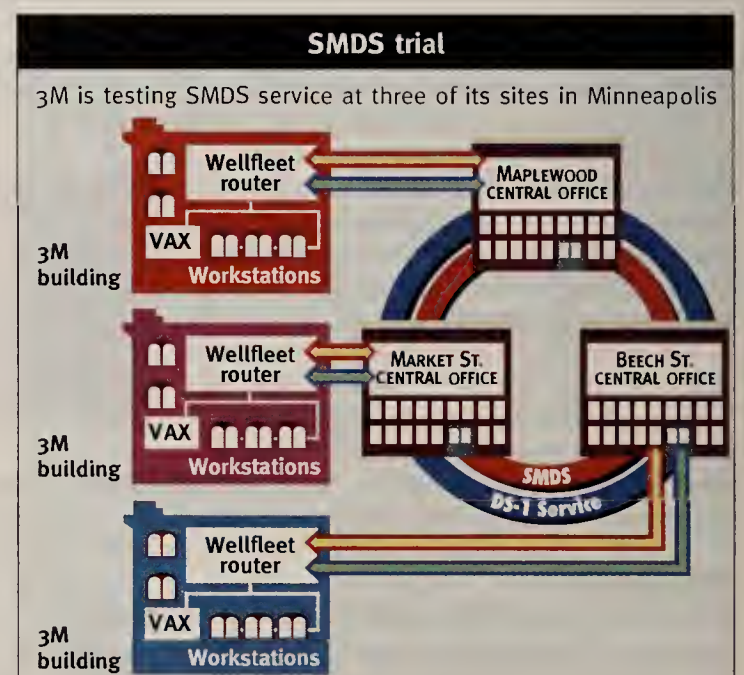
But Bumblis realistically noted that until DS0 (64K bit/sec.) and DS1 (1.544M bit/sec.) SMDS

is available, smaller companies will not find the service attractive. Indeed, 3M itself, which has 27 remote locations in the Twin Cities, would look at DS1-based SMDS to connect its smaller locations.



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CW Chart: Dave Marshall





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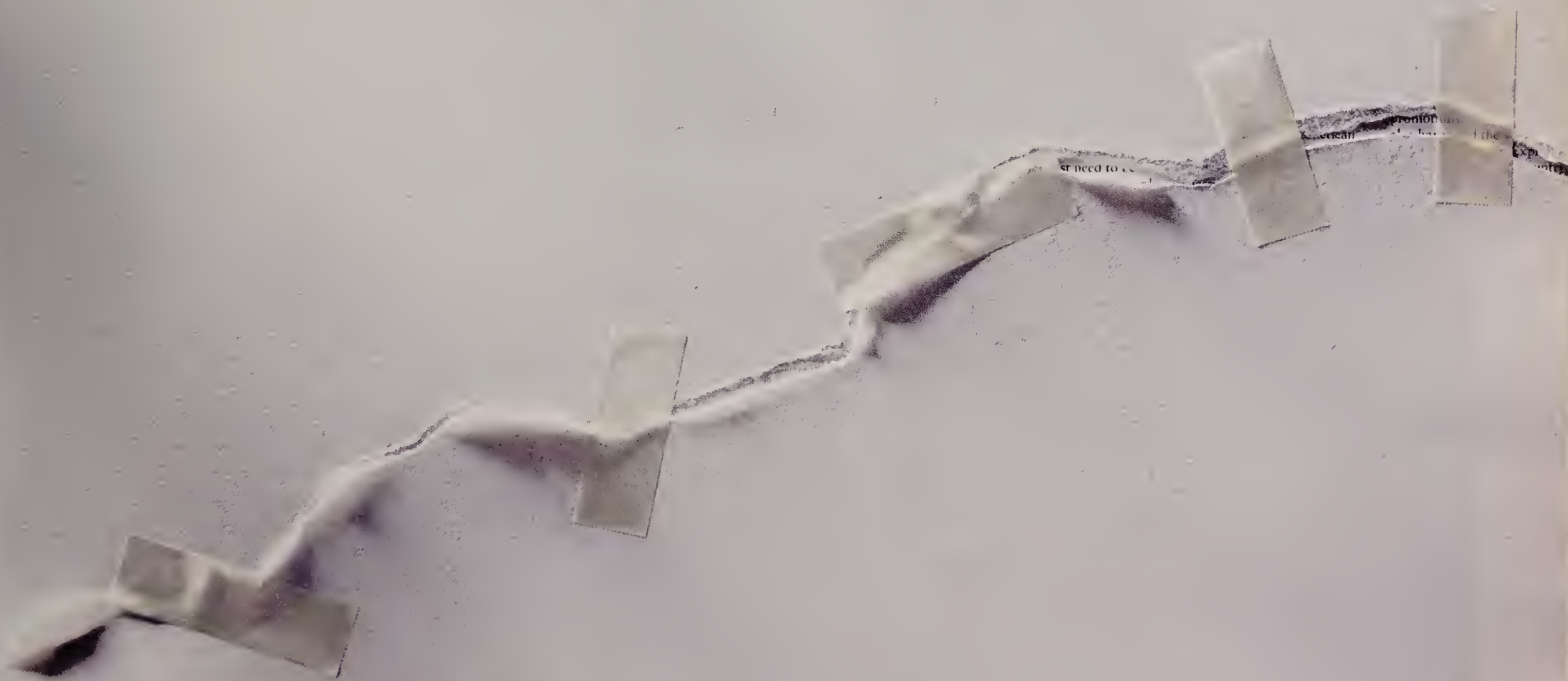
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## Reporter's Notebook

The following are some of the highlights of the EDI '94 conference in Orlando, Fla. last week.

• Session speaker Peter Puccio, an EDI specialist at **Weyerhaeuser** in Tacoma, Wash., said electronic data interchange

(EDI) systems often fail to meet anticipated return on investment because users do not connect them to their back-end data systems. That means EDI data still has to be keypunched once it arrives from a trading partner.

• **Bank America Corp.** is implementing a multimillion dollar Electronic Commerce System that integrates EDI, telecommunications, check printing and mailing services. It will provide disbursement and collection outsourcing ser-

vices. Tandem Computers and National Data Corp. are providing the hardware and software, and MCI was the first customer to sign up.

• **Sterling Software, Inc.** released Gen-tran:Viewpoint for the AS/400, software that lets non-MIS users query and track EDI documents through a workflow process. It is meant to ease the EDI administrator's job by shifting status inquiries to end users.

• **St. Paul Software** in St. Paul, Minn., in-

troduced an EDI control and reporting system for Unix. The product includes translation, mapping, EDI-to-fax processing and mailbox features. It lets a company accept EDI documents from a trading partner, splits the documents into parts and sends them to the appropriate divisions for processing.

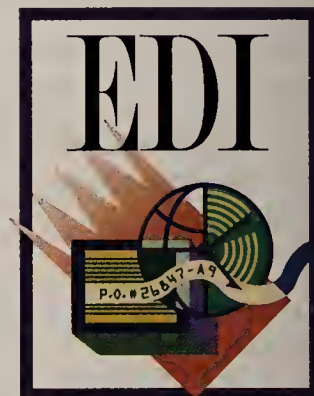
• **Foresight Corp.** in Dublin, Ohio, launched software that helps companies generate implementation guidelines for their trading

partners.

The software already contains all the leading industry-standard transaction sets. It allows an EDI manager to choose the pieces of the specifications, and the software automatically generates the documentation. A license starts at \$15,000.

• **The Data Interchange Standards Association, Inc.** and **Washington Publishing Co.** introduced AccessRamp electronic document software. AccessRamp uses Adobe Systems, Inc.'s Acrobat technology to let users navigate through EDI X12 standard transaction sets on a computer rather than search through books.

• **American Business Computer** in Ann Arbor, Mich., announced EDI software that guides users through EDI implementation. Expert systems and case-based reasoning help define the correlation between EDI data structure and the application's data structure without human intervention. — *Lynda Radosevich*



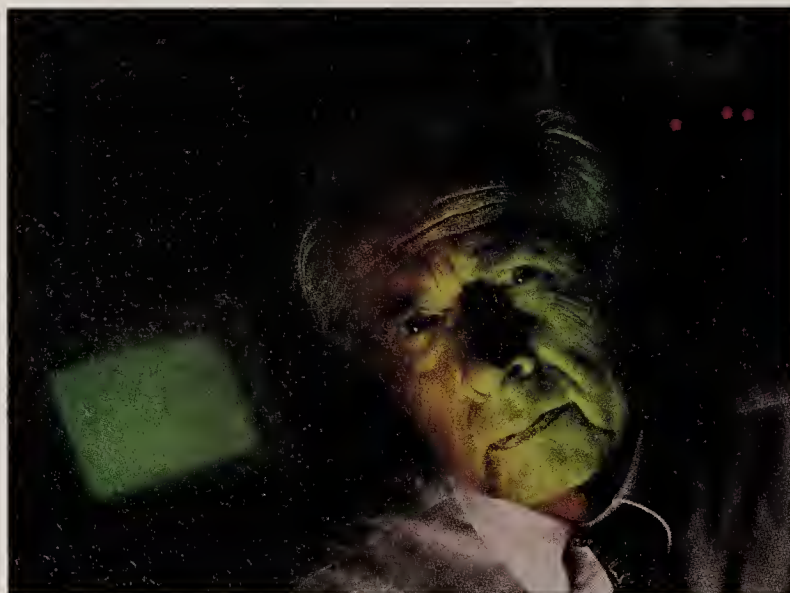
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Bill Jones, MIS, age 38

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## EDI

CONTINUED FROM PAGE 63

with just three provided by ASAP.

Michael Tisdale, assistant vice president for materials management at Woman's Hospital in Baton Rouge, La., said he looks forward to more standardization and plans to adopt OnCall EDI.

Tisdale said he is especially excited about the prospect that suppliers can use the system to download price changes for thousands of products. Currently, changes in the pricing database are made manually — and inevitably some are missed — which leads to complicated billing disputes, he said.

### Lower costs

According to EDI analyst Torrey Byles at BIS Strategic Decisions in Norwell, Mass., a 500-bed hospital spends \$30 to \$40 every time it places an order, and suppliers spend \$24 to \$28 to process the order. EDI could reduce the hospital's cost to \$12 per order and the supplier's cost to 32 cents per order, Byles said.



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# Digital helps tighten Internet security

By Gary H. Anthes

Digital Equipment Corp. has introduced a package of software and services aimed at protecting corporate Internet users from network intruders.

Called SEAL, or Screening External Access Link, the package is a commercialized version of Digital's own internal system, in operation for 10 years.

SEAL consists of security consulting, custom development of Internet security policies and rules, installation and configuration of software, and training and post-installation telephone support. Prices start at \$25,000, which includes a week of on-site consulting and two weeks of telephone support.

## Sense of security

SEAL includes a programmable "fire-wall" that hides internal networks from the Internet. No direct connections from the Internet are possible, and data packets are accepted or rejected by customer-controlled "application relays."

Digital "is recognizing that security for corporations using the Internet is a major pain point right now," said Laura DeNardis, senior research analyst at Meta Group, Inc. in Westport, Conn. "But the dilemma is that there is a conflict between the amount of security you provide

and the flexibility you give to users. It does limit functionality."

Still, DeNardis said, SEAL and a handful of similar products offer better security than the standard packet-filtering capabilities of routers.

SEAL forbids access to corporate systems unless the external user is authenticated at the firewall. Authentication is

performed via handheld devices that generate an encrypted response to a challenge generated by the firewall.

Users set the policies. For example, a company might decide initially to permit only electronic-mail access to the Internet and later allow users to perform remote log-ins or file transfers.

SEAL also produces logs useful for

identifying suspicious activity, the company said.

SEAL's standard Internet gateways include E-mail, file transfer, remote log-in, client/server information services, such as Gopher and World-Wide Web, and notes conferences. Optional components include customized gateways to Internet services such as Usenet news groups.

A Digital spokesman said SEAL is used by about 20 customers — mostly large firms — but he would not name them.

## Briefs

### Wellfleet sees growth

Wellfleet Communications, Inc. in Billerica, Mass., announced revenue growth of \$103.8 million for its third fiscal quarter, which ended March 31. Net income for the quarter was \$16.4 million, compared with \$7.6 million for the same period last year. The company also announced a 2-for-1 stock split to take effect on May 13.

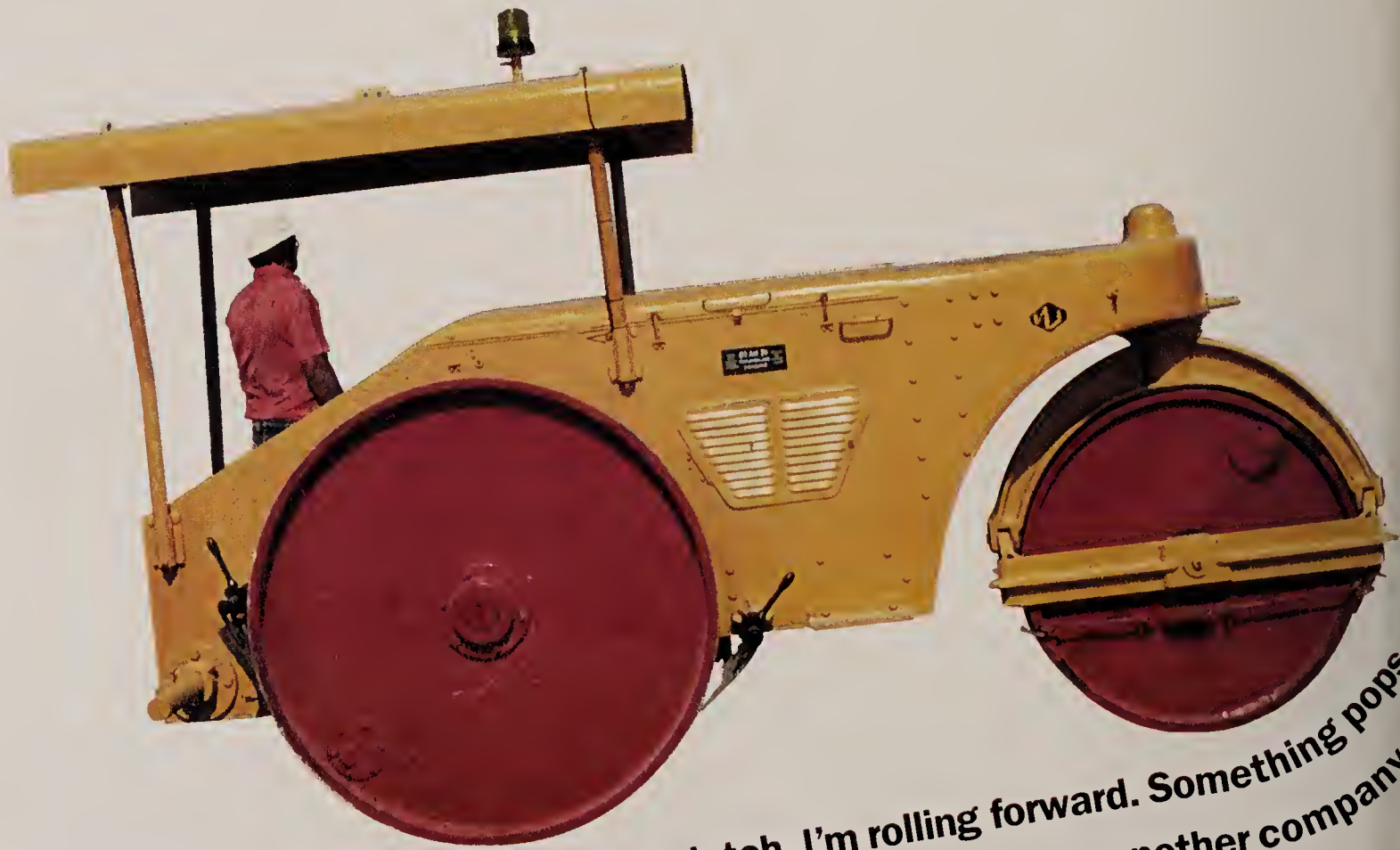
### IBM offers ATM chip set

IBM has announced the availability of a 25M bit/sec. Asynchronous Transfer Mode transceiver chip set, which was designed to produce lower-cost ATM hardware. TranSwitch Corp. in Shelton, Conn., will market the chip set.

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# CDPD service takes first step toward reality

Initial users are expected to test technology

By Michael Fitzgerald

The great wireless hope, Cellular Digital Packet Data (CDPD), recently took a solid step forward with the first announcement of commercial service.

Bell Atlantic Mobile, the cellular arm

of Bell Atlantic Corp., has rolled out CDPD service, called AirBridge, in Pittsburgh and the Washington/Baltimore corridor [CW, May 2]. That move, observers said, signals that CDPD will finally be something customers can actually use.

"It's an important step for CDPD," said

Andrew M. Seybold, editor in chief of "The Outlook on Mobile Computing," a newsletter in Brookdale, Calif. Seybold, who in the past has attacked CDPD vendors for hyping technologies they could not deliver, praised Bell Atlantic for putting technology in the marketplace.

Lee Nolan, senior telecommunications engineer at The Travelers Insurance Co.

in Hartford, Conn., called AirBridge "an encouraging sign that CDPD is rolling out, and for real." But, "AirBridge doesn't mean anything because there's no coverage" in Connecticut yet, he added.

Nolan said Travelers was interested in wireless technology because it could let auto claims adjusters close the claims at the accident site, an option they do not have now. "We hope CDPD will provide them the means to do that," Nolan said.

## Optimistic goals

Bell Atlantic officials promised that they and other players in the cellular market, such as McCaw Cellular Communications, Inc., would make CDPD commercially available in the nation's 61 largest markets by year's end.

In the meantime, though, CDPD is behind schedule, and vendors have a lot of broken promises to fix on delivery dates. Analysts said they doubt Bell Atlantic will initially attract much in the way of commercial use, especially since the service is commercially available in only two cities.

"They're offering CDPD in two cities, and

Ardis and RAM [Mobile Data] have had a hard time gaining customers with nationwide service," said Ira Brodsky, president of Datacomm Research, Inc. in Wilmette, Ill. Brodsky said he thought initial users would largely be companies testing the technology.

Bell Atlantic did announce a customer, but it was the Groton, Conn., police department, which will not be able to use CDPD for three to four months, when Bell Atlantic brings in CDPD to the state.

## Pilot projects

Though there are almost no CDPD sites up and running, tests and pilots are under way in a variety of cities, including Chicago, Houston, Los Angeles, San Francisco, Seattle and Las Vegas.

64

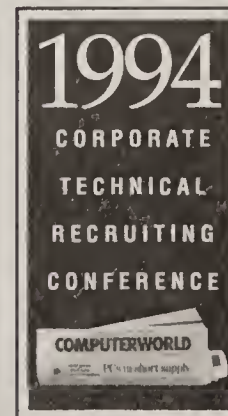
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# IBM testing latest version of NetView

LAS VEGAS

By now, beta-test copies of Version 3.0 of IBM's NetView 6000 should be on their way to customers, in anticipation of a summertime general release of the Unix-based network management system, an IBM manager said.

Version 3.0 will add three key features to NetView 6000, according to Sanjiv Ahuja, IBM's director of enterprise management platforms at the Networking Software Division.

Ahuja, in an interview at Networld/Interop '94, said the new release will let users physically separate the managing system from its database, choose their own database management system and schedule alternate systems to take over as network managers in a backup situation.

He said separating the database from the management system al-

lows users to place the management console in one site and the database in another site where there are more employees with database skills. This also allows the company to construct better disaster recovery plans.

**The latest release will let users physically separate the managing system from its database.**

Giving users the option to choose a database for network management operations lets the user company standardize on a DBMS that it may already use for other applications, as long as that DBMS uses

standard SQL, Ahuda said.

While IBM has not announced pricing for the new version, which was to ship in beta last week, Ahuda said availability of the release for IBM's AIX and for Digital Equipment Corp.'s Polycenter management environment will be closely timed. Availability for Sun Microsystems, Inc.'s Solaris will follow shortly, he said.

—James Connolly

# Network security tool debuts

By Stephen P. Klett Jr.

Tracking security validation in client/server environments is a formidable task that can lead to some serious headaches among network security managers. A new IBM product seeks to address this.

"Security wasn't bad on the mainframe because you only had one password to remember per data center — but those days are long gone," said Jim Yurek, assistant vice president of information security at Household Financial Network in Northbrook, Ill. "In a distributed network such as ours, with 15,000 users, network security is a nightmare."

To help network managers solve this problem, IBM's Networking Software division unveiled a new release of its network security application, NetSP, at the recent NetWorld/ Interop '94 show in Las Vegas.

NetSP Version 1 Release 2 centralizes security in a third-party server rather than spreading security validation across a network. It uses a variety of techniques, including encryption, to validate users' identities and their access to applications. The product works without requiring passwords or keys to be transmitted in clear text, which hackers can intercept.

Version 2 includes an interface for single

sign-on to IBM LAN Server 2.0 or 3.0 and Novell, Inc. NetWare 3.12 or 4.01 servers. The interface also lets users perform most of the command-oriented steps of logging on to a system intuitively by pointing and clicking with a mouse. IBM also added support for Hewlett-Packard Co.'s HP/UX 9.0, Sun Microsystems, Inc.'s Solaris 1.1 and DOS/Windows operating systems.

## One password, one log-on

What this means for users is they have to log on only once, even though they might be requesting information located on several different systems. For example, an OS/2 user can sign on once to NetSP with one password and get logged on to an IBM LAN Server or Novell NetWare Server, then click on a CICS system, then a time-sharing system.

For network managers, this means they no longer have to continually field calls from users saying,

"I forgot X password to get into X application," Yurek said.

Yurek said he expects NetSP to provide significant savings in training because users no longer need to key in the commands to access an MVS application. "I look at it more as a productivity tool than a security tool," he said.

Household Financial has a network of roughly 15,000 users, who send about 1,000 requests for log-on assistance to the help desk each day.



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## Mining for customer data gems

By Thomas Hoffman  
NASHVILLE

Despite James Gray's desire to improve his golf game when he moved here last year to take the information systems helm of Service Merchandise Co., he has spent most of his time improving the retailer's use of information technology.

"Being an MIS executive is not conducive to playing a lot of golf," said Gray, group vice president of MIS at the nation's largest catalog showroom retailer. He moved to this more sunny clime from Anchorage, Alaska, where he had been chief information officer at food wholesaler Carr-Gottstein Food Co.

Indeed, the IS department at the \$3.81 billion general merchandiser has had its hands full during the past year with a bevy of IS projects designed to help Service Merchandise fine-tune its business strategy. These include a recently completed effort to migrate the company's mainframe-based marketing database to a customized Unix platform.

### A change in database

Earlier this month, Service Merchandise switched from a Computer Associates International, Inc. CA-IDMS marketing database on an Amdahl Corp. machine to a specialized Unix-based marketing database from Harte-Hanks Data Technologies in Billerica, Mass.

In the past, Service Merchandise marketers had trouble extracting customer information from the mainframe database using SAS Institute, Inc.'s SAS System software. The marketing database was also expensive to run on the mainframe and consumed an inordinate amount of processor time, Gray said.

### ON SITE

**Service Merchandise Co.**  
Nashville

**Challenge:** To provide marketers with histories of customer purchases and information in a more accessible format.

**Technology:** Harte-Hanks' Unix-based relational database; Sun's SPARCcenter 2000; CA's CA-IDMS RDBMS; SAS Institute's SAS System data access software; Amdahl's mainframe; and CA's CA-Visual Express application development tool kit.

**Results:** Significantly improved data response times for marketing staff; reduced mainframe costs from off-loading marketing database to Unix.

So the company decided last year to implement the Harte-Hanks P/CIS database, which was specifically designed for marketing activities. The system performs a wide range of marketing-related functions, from cross-selling to historic trend analysis.

"A general-purpose database wasn't going to fit the bill for us," Gray said. "The Harte-Hanks system is geared exactly to what our marketing people need."

Service Merchandise has rolled the database out to 15 Intel Corp. I486-based workstations connected by a Sun Microsystems, Inc. SPARCcenter 2000 Unix server.

Bob Islinger, operating vice president of marketing at Service Merchandise, said he believes the system, which is more user-friendly than its mainframe replacement, will be a boon to his organization.

"We're going to be able to ask a lot of 'what-if' questions within the database so that we can better understand our customers and our business," Islinger said.

### Money not an issue

Gray said the switch from a mainframe-based marketing database to Unix was not a dollar issue, even though the cost to maintain the software on the mainframe was 10 times greater than on the Sun platform. "The real difference is that we can get answers to marketing problems right away," Gray said. He estimated that the

cost of the new system is between \$800,000 and \$1 million, including database software, hardware and networking equipment.

The marketing system arrives at a critical juncture for Service Merchandise. Same-store sales — the key barometer of a retailer's financial performance — have slipped for the past



Service Merchandise's James Gray: "The real difference is that we can get answers to marketing problems right away"

four quarters. "Category killers" such as Toys R Us, Inc., Circuit City Stores, Inc. and The Sport Authority have been eating away at Service Merchandise's market share, according to

**Customer data, page 82**

## Survey reveals growth in data center work loads

By Mary Brandel

■ **Data center work loads are still growing, but expenditures for technology and personnel are shrinking, according to Nolan, Norton & Co.'s annual data center baseline survey.**

In the 200 sites surveyed, data centers used 5% more processing capacity than last year. In the meantime, on-line user populations remained steady, and average processor loads remained unchanged.

Overall expenditures decreased by 5.5%, which Nolan, Norton attributed mainly to lower technology costs, especially in processors and disk storage. Technology spending was down 6%, while personnel costs were down 3%.

Such efficiencies are critical, the consulting firm said, as many organizations are seeking peak efficiency of their current operations.

### Software spending up

Spending was up, however, in the systems software area by 7%. In fact, systems software is now the second largest data center expenditure next to processors, said Thomas Hickey, director of the baseline data center services at Nolan, Norton.

Hickey said he expects systems software pricing to continue to rise, despite IBM's move to usage-based pricing. "As long as there's unique functionality differences [in software offerings], I don't see why [other software vendors] would need to follow suit," Hickey said.

This is a "sore point with customers," said Joseph Vincent, director of technical services at Humana, Inc. "This is an area where vendors kind of have you. You can't just deinstall software because you don't like the price."

On the hardware side, Hickey told attendees to take advantage of falling disk prices to get good storage deals. Total installed disk storage has risen in past years, and it was up 8% in this survey. At the same time, the percentage of that storage in use increased only 3%, indicating improved storage management practices, Hickey said.

Vincent said his organization saw a 14% to 15% in-

crease in direct-access storage devices (DASD) in the last year due to new business. "We had to go through hoops to justify our last DASD expenditure," he said.

So far, redundant arrays of inexpensive disks (RAID) has had little impact in data centers, "but we've already started to see that change," Hickey said. With tape hardware more costly, he said, more data will be moved from tape to disk storage.

In terms of vendor presence, IBM's share of installed disk continued to erode in the data centers studied, from 69% to 65% this year, while Storage Technology Corp.'s rose from 2% to 6% this year. "People have brought in plug-compatible manufacturers as a negotiating tactic with IBM, and it's a tactic that works

successfully," Hickey said.

Data centers surveyed ranged in size from less than 5 MIPS to more than 1,200 MIPS.

### Peak performance

#### THE MOST EFFICIENT DATA CENTERS HAVE THE FOLLOWING:

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- Higher use of disk resources through caching and SMS management.
- Automated tape library use restricted to high-volume, service-sensitive applications.
- A staff mix favoring "doers" over managers and administrators.

Source: Nolan, Norton & Co., Cambridge, Mass.



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## Large Systems

# Multi Soft unveils software tool

Continuing to surf the client/server wave, Multi Soft, Inc. has introduced a utility that lets corporate information systems managers better distribute and maintain client/server and PC applications from a central location.

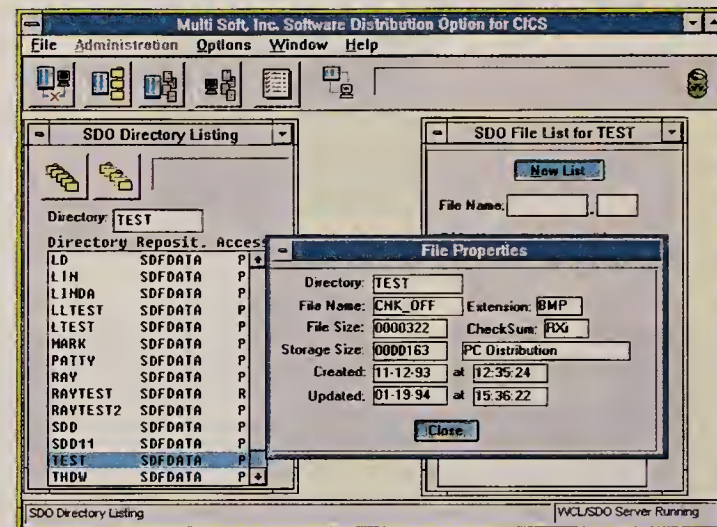
makes it possible for client/server and PC applications to be managed with a significantly smaller amount of maintenance overhead and without the need for user or server lists to be created.

"If you are going to make changes to [client] applications or tables, IS right now can't possibly update 400 or 500 clients in any efficient way," said Charles Lombardo, Multi Soft's president. "What we do is allow you to transparently build support directly into the client application allowing you to maintain application integrity, which is very important to IS."

Ascribing to the tenets of Open Architecture, WCL/SDO's auditing and distribution

functions can be completely integrated with any application capable of calling on a Dynamic Link Library, the company said.

The host component of WCL/SDO costs \$25,000, with various corporate site licenses available. The average price of a client is \$75. — Ed Scannell



Multi Soft's WCL/SDO makes it possible to better maintain client/server and PC applications from a central location

The WCL/Software Distribution Option (SDO) makes use of what Multi Soft says are mainframes' best attributes for central storage and the maintenance of master libraries. Similarly, SDO uses a PC's best attributes to deliver administrative functions to desktop users.

Multi Soft executives said the package

## New Products

Information Advantage, Inc. has announced the Information Advantage (IA) Report and IA Analysis, the first of four applications in the Information Advantage Decision Support Suite for data warehouses.

According to the Minneapolis company, IA Report offers a fast, flexible, consistent way to monitor and manage an enterprise at all levels.

The product provides accelerated report generation and requires minimal ongoing development support.

The IA Analysis application gives users complete access to enterprise operations and historical data, along with tight integration with desktop applications for statistical analysis, qualitative analysis, graphics and presentations.

The applications in the suite are available as an integrated set for \$300,000.

► **Information Advantage**  
(612) 938-7015

Help/Systems, Inc. has introduced an interface for Robot/Save 4.0, its automatic backup and recovery system to Fathom Technologies' Fathom Optical Storage Products.

According to Help/Systems in Minnetonka, Minn., the Fathom optical storage product provides multifunction operation, write-once, read-many and rewritable media access to AS/400 users.

The interface enables Robot/Save to manage the Fathom optical storage sub-

system during backup operations, automating the system backup.

After the initial setup, the user can perform unattended backups, including SAVSYS and NONSYS operations.

Robot/Save prices range from \$5,245 to \$17,135.

► **Help/Systems**  
(612) 933-0609

Silvon Software, Inc. has introduced Release 3.4 of its Implementer change management system.

According to the Westmont, Ill., company, Implementer manages the development and movement of programming changes among development, test and production libraries on the AS/400.

The product also offers promotion job scheduling, enabling programmers to schedule jobs while promoting their modifications.

Standard program license fees range from \$5,000 to \$24,000.

► **Silvon Software**  
(708) 655-3313

## Product short

Standardware, Inc. has introduced Cope IMS/DC and Cope CICS/DBCTL, products designed to reduce IMS/DC control regions and eliminate CICS local DL/1 while providing as many CICS, IMS/DC and DBCTL test environments as necessary. Cope consolidates multiple CICS local DL/1 environments without changing a line of application code. Cost: Starts at \$80,000. Standardware, Pelham Manor, N.Y. (914) 738-6382.



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# SSA needs to improve business planning

## Report said the agency has failed to address major service improvements

By Gary H. Anthes  
WASHINGTON

The Social Security Administration's (SSA) five-year, \$1.1 billion migration from mainframe to client/server computing is technically sound. Yet the agency is unlikely to realize significant benefits because it has not addressed the business process re-engineering needed to improve service.

That is the bottom line in "The Social Security Administration's Decentralized Computer Strategy," recently released by the Office of Technology Assessment (OTA) of the U.S. Congress.

"SSA has prioritized [systems] installation according to current SSA operational and service delivery needs — essentially automating marginal improvements in the status quo," the OTA said. The report said SSA had failed to produce a "service delivery plan" that would identify ways to improve service to the public through better business practices.

### Making an effort

However, the OTA said the SSA appeared to be making a "good-faith effort" to thoroughly restructure its service delivery.

"It's sort of like the Chivas Regal ad, whether the bottle is half-full or half-empty," said Renny DiPentima, deputy commissioner for systems at the SSA. "We think we have a pretty good planning system, but the OTA has pointed out some things that do need to be enhanced and improved."

Outlining three options, the OTA said

Congress could delay the project, called "intelligent workstation and local-area network" (IWS/LAN), or approve funding for it as is. However, it recommended beefing up funding for re-engineering and service delivery planning and that the SSA become more involved in governmentwide electronic delivery pilots and projects.

The OTA suggested the SSA employ pilot tests in the following areas:

- Integrated electronic records, in which SSA recipients would have a single "electronic folder" instead of separate electronic and paper files.
- Multiprogram electronic benefits delivery, in which a single card could be used to obtain payment for food stamps, Medicaid and Social Security benefits, for example.
- Automated disability determination, to streamline determination of initial and ongoing medical qualifications for disability insurance payments.
- Electronic bulletin boards and networks to deliver information about the SSA to the public.

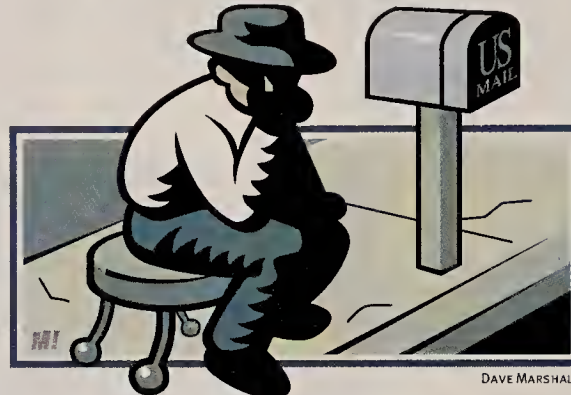
"Just approving the money and keeping your fingers crossed is not likely to maximize [the SSA's] return on investment," said Fred B. Wood, the OTA's project director for the SSA report.

### Time to decentralize?

The SSA has centralized mainframe systems at its National Computer Center in Baltimore, with 39,000 dumb terminals at

1,300 field offices and 37 "teleservice" centers attached via SSANet. Most applications are written in Cobol and CICS.

IWS/LAN is intended to move the SSA to a more decentralized computing model, with 95,000 Intel Corp. I486-based PCs deployed on Token Ring LANs. This should give field personnel much more computational autonomy. As applica-



tions are rewritten, the mainframes will evolve into data servers, the SSA said.

Although the OTA found the proposed architecture generally sound, Wood questioned the feasibility of managing such a large base of distributed computing from a single facility in Baltimore.

"I don't take what Fred [Wood] says lightly; it is a very big challenge to maintain such a large network and monitor it centrally," DiPentima said. "On the other hand, if I was to attempt to monitor it locally, I'd need 2,000 LAN managers."

DiPentima said the SSA's existing centrally managed network processes 20 million transactions a day with 99.9% uptime.

## Customer data

CONTINUED FROM PAGE 79

H. B. Thomson III, a senior vice president and retail analyst at Wheat First Butcher Singer, a Richmond, Va., investment bank.

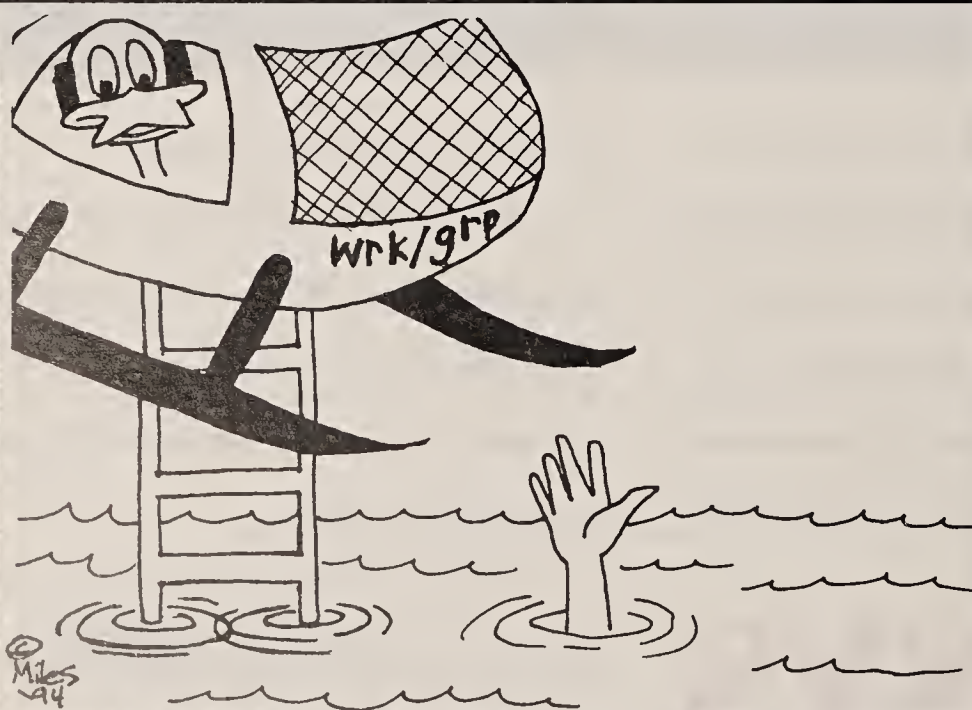
Still, most analysts were optimistic about the organizational changes at Service Merchandise, which operates 395 outlets nationwide and is planning to add more than 20 locations this year. The retailer is exploring a variety of ways to enhance the "customer experience." These include ways to inform patrons at an earlier stage in the selling cycle if an item is not in stock, according to Christopher M. Weis, an analyst at Equitable Securities Corp. in Nashville. To track its inventory, Service Merchandise runs a Motorola, Inc. 68000 Unix-based machine in each store. They are linked to one another and the company's data center over a wide-area satellite network.

### Put to the test

Gray said Service Merchandise will likely use the marketing project as a test bed for a planned overhaul of its merchandising systems. For that project, Gray said, the retailer plans to use an information warehouse approach for its merchandising systems. Data will be formatted into a relational database to make it easier for staffers to extract information using data-access tools such as CA's CA-Visual Express.

Because the company has 20-plus years of mainframe application development invested in its merchandising systems, Gray said a soup-to-nuts re-engineering initiative is not in the company's best interest.

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## New Products

Software Engineering of America has introduced Release 4.0 of Operator Dynamic Dialog Subsystem (ODDS/MVS) for MVS-based unattended automated operations.

According to the Franklin Square, N.Y., company, the product offers an AutoRule Facility that allows a data center to generate NetView alerts, create and update information management problem records and monitor the availability of critical systems and subsystems.

Release 4.0 also employs MVS/ESA architectural features such as the Virtual Lookaside Facility to exploit data space use.

ODDS/MVS is priced from \$14,700 to \$31,835.

► *Software Engineering of America*  
(516) 328-7000

California Software Products, Inc. has announced Release 1.5 of Baby/4xx, its RPG software system.

According to the Santa Ana, Calif., company, Release 1.5 offers increased IBM AS/400 compliancy, better performance and Microsoft Corp.'s Windows

NT compatibility.

Features include multiple prefix message files support, second-level message support, automatic update of an optional migration support utility, extended file resources and larger program support.

Baby/4xx costs \$3,500.

► *California Software Products*  
(714) 973-0440

4th Dimension Software Ltd. (4D) and Hewlett-Packard Co. have announced the availability of the Enterprise Control Architecture, 4D's distributed systems management architecture, on the HP/UX operating system.

According to 4D in Irvine, Calif., the Enterprise Control Architecture offers a platform-independent enabling technology that provides a single graphical user interface from a central point of control, a distributed shared operations repository and full interoperability across heterogeneous environments.

The first product available is Control-M for HP/UX, designed for scheduling and production control capabilities on HP's Unix-based platforms.

Pricing for Control-M for HP/UX starts at \$750.

► *4th Dimension Software*  
(714) 757-4300



## Briefs

### Computerm buys gateways

**Computerm Corp.**, looking to expand beyond its niche in the mainframe channel extension market, acquired **McData Corp.**'s LinkMaster 6100 and 6200 gateway products for connecting LANs and IBM SNA networks over a common backbone. Computerm said it plans to add support for IBM's Data Link Switching specification this fall, along with an SNA/IP software gateway for routing SNA data across Novell, Inc. NetWare LANs.

### Firm makes client/server deal

**Systems & Computer Technology Corp.**, a Malvern, Pa.-based systems integrator, has signed a letter of intent to purchase **Synercom Technology, Inc.**'s Work Management Information System (WMIS) division for \$2.25 million in cash. WMIS, a client/server package, was designed to automate the control and reporting of construction, maintenance, field service and repair for utilities.

### CA shipping IBM AIX version

**Computer Associates International, Inc.** is shipping IBM RS/6000 for AIX versions of its CA-Unicenter distributed systems management package. CA also introduced a release of CA-Warehouse Boss, a warehouse automation solution for IBM AS/400 midrange environments; its features are said to improve customer service by linking supply-chain planning with warehouse management.

### Unisys wins \$20M contract

**Unisys Corp.** won a \$20 million banking contract — including consulting information services and A series mainframes — with **Banco America Do Sul**, a \$1.3 billion bank in San Paolo, Brazil.

### Patent suit settled

**Ross Systems, Inc.** and **Marcam Corp.** have settled their patent infringement lawsuit filed in 1993 that claimed Ross wrongfully infringed on a patent that Marcam held relating to its manufacturing software. While full terms were not disclosed, Ross will license the Marcam patent and has agreed to drop counterclaims against Marcam.

### LAN backup product in offing

**Boole & Babbage's** storage automation division, **Empact Software**, said it will distribute a LAN-to-mainframe backup

product from **Emprise Technologies** called Stage3. The product uses popular LAN backup software but redirects the output to MVS hosts at a rate up to three times faster than alternative solutions, according to Empact.

### DOE awards contract

**DynCorp**, a professional and technical services company in Reston, Va., won a five-year, \$227 million outsourcing contract from the U.S. Department of Ener-

gy's office of Human Resources and Administration. DynCorp will provide computer and telecommunications services to the agency's headquarters in Washington and at major offices in Maryland, Georgia and California. Computer Data Systems, Inc. in Rockville, Md., held the contract before.

### Firm buys disaster business

**SunGard Recovery Services, Inc.** acquired the AS/400-oriented disaster re-

covery business of **Storage Technology Corp.**'s XL/Datacomp, Inc. subsidiary for an undisclosed price. The purchase included all of XL/Datacomp's subscriber contracts for disaster recovery on the IBM AS/400 plus other unidentified assets. The sale is not expected to have a material impact on either company's financial condition or operating results during 1994, the companies said. XL/Datacomp now plans to focus solely on the midrange storage market.

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# Through cooperation come standards

By Melinda-Carol Ballou

■ Corporate developers seeking some order in the object standards wars are beginning to have options as vendors bring out ways of allowing different object models to communicate.

This is critical to large customers who need to reconcile Microsoft Corp.'s Object Linking and Embedding (OLE) specification with the Object Management Group's (OMG) Common Object Request Broker Architecture (CORBA). Although Microsoft — and OLE — dominate the desktop, virtually every other major systems vendor has pledged support for CORBA. Users want to develop applications that can work with both object models.

## Working together

"We would like to see better integration between OLE and other object standards," said Jacques Leisy, software architect at Multex Systems, Inc., a Jersey City, N.J., developer of applications for Wall Street investment firms. Leisy said his organization has to support OLE on the front end for the desktop, but on the back end, it has a mix of Unix and other systems.

"Being trapped in a Microsoft world is something we don't want," Leisy said. "I want object brokers to allow us to issue requests regardless of where the object is located" and which object model it supports.

John Rymer, an analyst at Patricia Seybold Group, a Boston consulting firm, agreed. "Customers are saying to Microsoft, 'You can't do the enterprise with OLE [alone]. Get on the stick because all the enterprise vendors are going with CORBA.'"

Vendors are beginning to respond. Among the initiatives are the following:

- Although they are two months behind schedule, Microsoft and Digital Equipment Corp. will

later this month offer an initial cut on their Common Object Model (COM) specification for industry review. COM will integrate OLE and CORBA objects that are remote or local across a number of platforms, officials from both companies said.

- IBM is already shipping a version of its SOMobjects tool kit, which allows developers to create applications that support OLE applications and IBM's System Object Model (SOM) and Distributed SOM (DSOM), which are IBM's CORBA implementations.

- Component Integration Laboratories is making sure that its OpenDoc specification provides interoperability between OLE and SOM through mappings to OLE that are being developed by WordPerfect Corp.

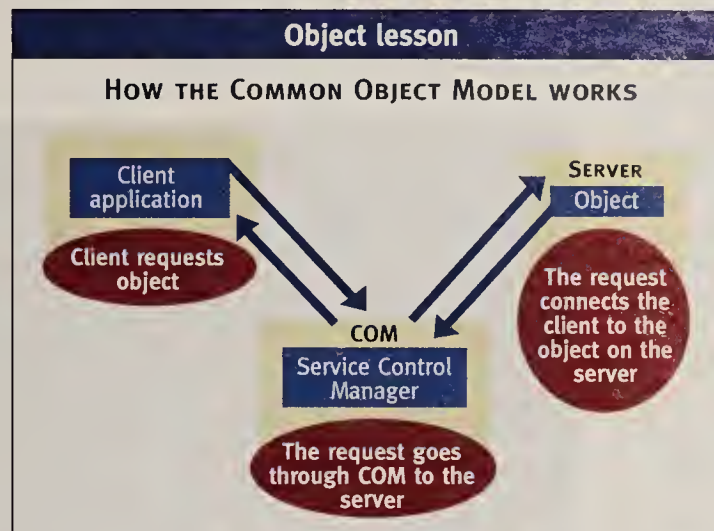
- Tools vendors ranging from Expertsoft Corp. to AT&T Global Information Solutions also support both object standards.

- Industry sources said Candle Corp. is working with Microsoft to create specifications for OLE and CORBA and that an announcement about that work will be forthcoming this summer.

## Crossing platforms

The Digital and Microsoft COM specification incorporates the OLE object model — along with Digital's Object Broker implementation of CORBA — across a range of platforms, according to David Seres, senior product manager for OLE at Microsoft.

At its most basic, COM provides an object fetching service between clients and servers (see chart). COM will also offer higher-level services such as data transfer, communication between objects, the ability for objects to retain



## Coin of the realm

Specification work for the OMG's CORBA 2 interoperability specification is pushing forward, according to internal sources involved with the negotiations. It seems likely that the companies will offer support for a range of object transport mechanisms such as the OSF's DCE, TCP/IP and SunSoft, Inc.'s Open Network Computing. A number of companies involved have pushed for DCE support as a kind of object lingua franca, while others want the flexibility of support for a range of transport mechanisms.

vendors' CORBA products. This could change once Digital supports CORBA 2, the OMG's interoperability specification for CORBA, in Object Broker. CORBA 2 is expected to ship by year's end.

## Put to the test

Bankers Trust Co. in New York is testing COM's Service Control Manager for calling remote objects that support OLE or CORBA, according to Alex Kalpaxis, a vice president at the bank who is pleased with the early results.

Service Control Manager "will allow you to map your client requests for objects to a particular back-end server and will participate with COM in marshaling [objects] between heterogeneous systems," Kalpaxis said. "I'm figuring that anywhere in the mid-1995 time frame you'll see this technology in good use. But people should be checking it out now."

But Digital is not as dominant an enterprise vendor as some firms are, including IBM, so direct support from other companies will be key, according to Rymer. He and other analysts also questioned the COM specification from Digital and Microsoft, although they have not seen it yet. "The big question is: How much commonality will they offer between Microsoft's object model and Digital's CORBA-based model?" Rymer asked.

# ASK's Ingres becomes open, can retrieve data from rival relational databases

By Kim S. Nash

Despite financial setbacks and recent layoffs, The ASK Group, Inc. made good last week on promises to open its Ingres database and development tools to support competing databases such as those from Oracle Corp. and Sybase, Inc.

The firm is shipping OpenIngres, a version of the Ingres relational database that can fetch and use information stored in Oracle, Sybase SQL Server, Microsoft Corp.'s SQL Server and other rival databases. Furthermore, OpenRoad,

a set of development tools also designed to work with non-Ingres databases, is poised to ship late this month, the company said.

The goal is to let users incorporate non-Ingres products into client/server setups. But the OpenIngres database also includes new features such as support for binary large objects and X/Open Co.'s XA standard interface. The OpenRoad tool set, meanwhile, includes an upgraded, object-oriented fourth-generation language (4GL) and a new business and data modeling product dubbed Archi-

tect. ASK aims to sell the tools to Ingres and non-Ingres users, said Matt DiMaria, director of Ingres' tools marketing.

## Beat to the punch

Indeed, ASK is now shipping object-oriented development tools designed to create applications for Sybase and Oracle databases, even before those vendors have delivered such utilities for their own databases. "We want customers to evaluate our products on their merits, regardless of the database they use," DiMaria said.

OpenIngres and related modules for security, networking and other tasks are available for such platforms as Digital Equipment Corp.'s VAX/VMS and Alpha/Open VMS, Hewlett-Packard Co.'s HP/UX, Sun Microsystems, Inc.'s SunOS and Solaris and IBM's AIX. Versions for other operating systems are slated to ship in July.

While OpenRoad products are due out within weeks for Microsoft's Windows and Windows NT, comparable Unix offerings have not been announced. DiMaria declined to elaborate on the Unix products he said are in the works.

Pricing for Windows editions of OpenRoad modules is as follows: Windows/4GL starts at \$1,995, Architect starts at \$3,695, and drivers for various databases are priced at \$250 each.



# Massive text searches made easier

By Melinda-Carol Ballou

For corporate developers seeking to index and query masses of documents, Fulcrum Technologies, Inc. earlier this month released Version 2.0 of Fulcrum SearchServer.

SearchServer is a client/server text search engine that now supports Microsoft Corp.'s Open Database Connectivity (ODBC) database access technology.

Ottawa-based Fulcrum also released SearchBuilder for Microsoft's Visual Basic tools, which will allow developers to create applications with Visual Basic that incorporate the text-retrieval capabilities of Fulcrum's products.

## Paper problems

Early users of the products are building applications to more effectively access their corporate paper backlog.

Jim Falk, senior systems analyst at Davis, Polk & Wardell, a New York law firm, is using the Fulcrum tool kit to index more than 1 million client files.

"We have client files going back to the mid-1980s, and up until now we could only retrieve the file if we remembered who the client was," Falk said. "But over the years, people would change the file, use it for another client, and as associates came and went, it became more and more difficult to locate what we needed."

Falk's group created a program that acts as a front end for the lawyers, who can input search terms, catalog criteria and client names to do a Boolean search and obtain a list of documents that contain the appropriate information.

Searches incorporate a "similarity" feature that returns a relevance rating for similar documents, showing which ones contain the greatest number of overlapping keywords.

"In the short time we've been using this, we've been able to establish a precedence for new cases, [a process that] was difficult to do previously, saving a lot

of time, money and manpower for the firm," Falk said.

Fulcrum officials said that in addition to ODBC support, Fulcrum's SearchServer Version 2.0 includes the following new features:

- An "immediate indexing" capability that ensures that documents are indexed as soon as they are added to the database

and immediately reindexed if they are modified.

- A "text reader" architecture that allows SearchServer to be used to search and retrieve text objects stored within a relational database.

Fulcrum SearchServer Version 2.0 is shipping on major Unix, OS/2 and Windows platforms. Pricing starts at \$695 per user with a minimum of 100 copies. Fulcrum SearchBuilder for Visual Basic is priced at \$995 without runtime fees.

## Briefs

### Apple beta tests OpenDoc

Apple Computer, Inc. announced earlier this month that it is sending 1,000 Macintosh developers pre-beta copies of its OpenDoc software. OpenDoc allows developers to build and then share software components across applications and platforms.

The software is a key portion of the OpenDoc initiative under way at Component Integration Laboratories. The beta copies are expected to be sent to 20,000 developers later this summer, company officials said.

### KnowledgeWare sign-up

More than 20 vendors have signed on to a certification program for compatibility with KnowledgeWare, Inc.'s ObjectView client/server development tools, company officials said earlier this month. Those vendors include IBM, Microsoft Corp. and Novell, Inc. for networking, and database vendors Oracle Corp., Cincom Systems, Inc. and Gupta Corp.



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## New Products

**Jyacc, Inc.** has introduced Jam Version 6, a development tool set.

According to the New York company, Jam 6 offers a fully graphical environment, high-performance transaction management and repository-driven and object-based development.

Jam 6 performs complex applications without coding and has a graphical edi-

tor featuring full drag-and-drop functionality. The package provides an application editor, Visual Object Repository, Transaction Manager, graphical presentation interface, Jyacc's proprietary prototyping database management system JDB, a database driver for one third-party database and on-line documentation and utilities.

Pricing for Jam 6 starts at \$2,000.

► **Jyacc**  
(212) 267-7722

**Interactive Development Environments** has introduced Pictures/Structured Environment (Stp/SE) Version 5.0, software analysis and design tools for development teams using structured programming techniques.

According to the San Francisco company, Stp/SE provides a comprehensive system for building large-scale software systems.

Features include a shared repository that stores all analysis and design infor-

mation in one central location, a consistent and intuitive user interface that enables developers to learn and use the software more quickly and a "collapse and explode" feature that allows users to move portions of data-flow diagrams and navigate among editors.

Pricing for Stp/SE starts at \$10,000.

► **Interactive Development Environments**  
(415) 543-0900

**Software-Centric** has announced Strike for Windows, a collection of Dynamic Link Libraries (DLL) that provide concurrent access to various database management systems. Using SQL from any Windows front-end tool with support for calling external DLLs, users can access Microsoft Corp.'s/Sybase, Inc.'s SQL Server and Oracle Corp.'s and Gupta Corp.'s SQLBase.

According to the Sacramento, Calif., company, the product's application programming interface consists of two groups of function calls. The core set comprises more than 30 functions providing multivendor DBMS interoperability without code modification; a second group includes Strike Services Application Programming Interface for access to the advanced features of each DBMS.

Strike for Windows costs \$495.

► **Software-Centric**  
(916) 454-9031

**MetaWare, Inc.** has unveiled MetaWare High C/C++ for OS/2 2.1, a compiler.

The product includes Direct To SOM support for IBM's System Object Model (SOM) and cross-platform Distributed SOM (DSOM).

According to the Santa Cruz, Calif., company, Direct To SOM lets users create SOM binaries by compiling standard C++ source code. MetaWare High C/C++ for OS/2 2.1 provides SOM and DSOM kernel code licensed from IBM.

A developer can move existing C++ code to SOM by recompiling. All of the supporting components are included.

MetaWare High C/C++ for OS/2 2.1 is available for \$595.

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Shriners Hospitals for Crippled Children

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# is there **life** after outsourcing?

The answer is

**yes** but

it's not  
life as we  
know it



**GENERAL DYNAMICS' KRISTINE BUITENHEK:** *Since the outsourcing, 'there are fewer gray areas as to who does what'*

**inside**

**OPINION: How CFOs  
and CIOs view  
outsourcing  
experiences**

See page 96

**"We** were kept in the dark. There was a lot of rumor and suspicion. Nobody knew what was going on. The whole outsourcing was incredibly badly managed. Morale was real bad from beginning to end."

"Chuck," who wishes to remain anonymous, is still bitter about the way his company, a large oil and natural gas firm, handled the outsourcing of the entire information systems

department five years ago.

Then there's the tale, uncovered in a recent two-year study by Ernst & Young, of a kinder, gentler outsourcing: A burned-out technologist didn't want to go with the outsourcer, so with some research help and training assistance from his company, he made a career shift and is now "a very happy beekeeper."

Grim or playful, most outsourcing

Outsourcing, page 92

**BY KATHLEEN MELYMUKA**



# The whole is always great Incidentally, in networki

■ As confusing as it sounds, there truly are two completely opposing ways to look at high-performance networking. One is the big picture, the sum total of your network. Because it's

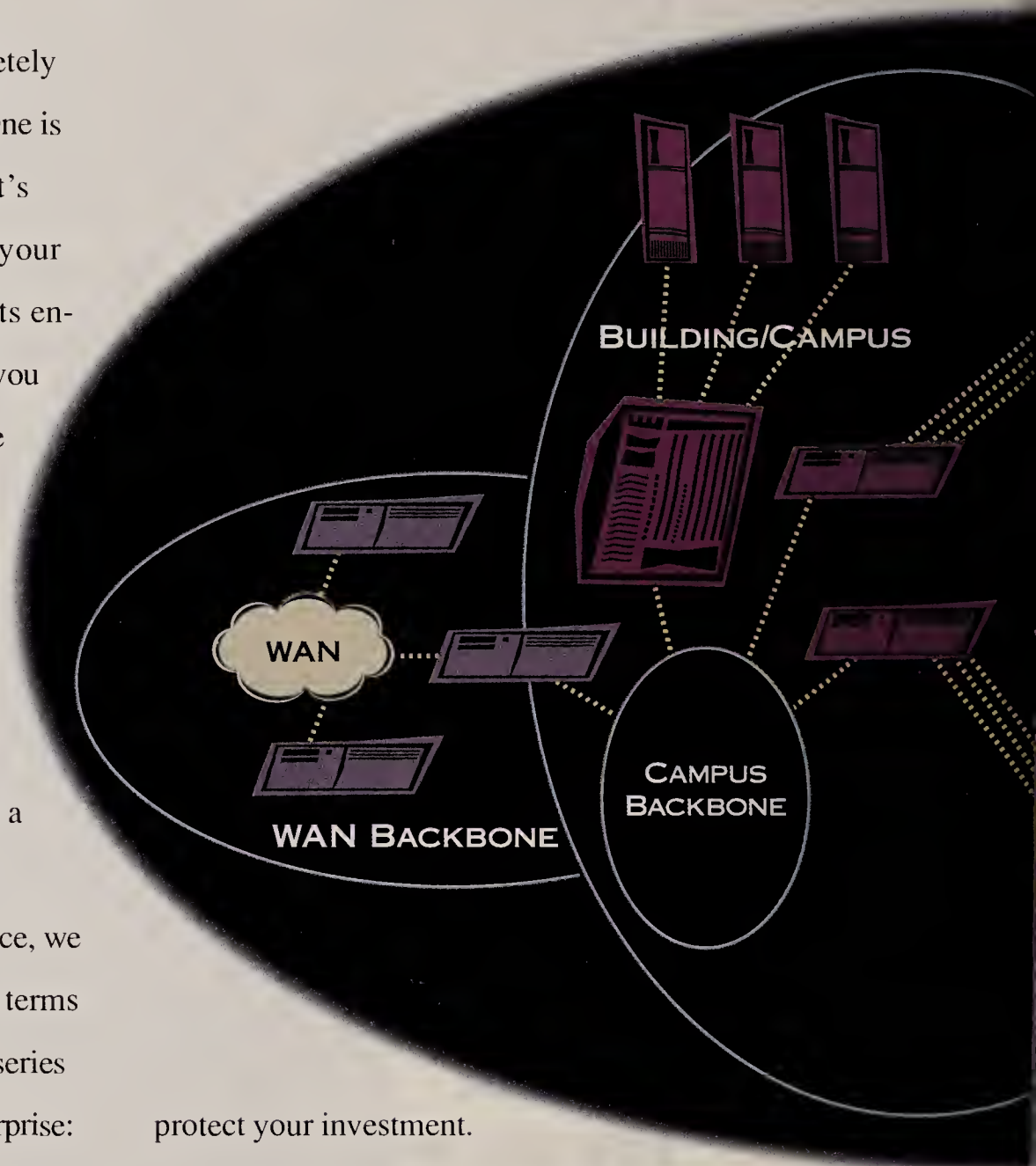


only by viewing your network in its entirety that you can be sure it's carrying your organization

toward the future without compromising the investments you're making today. Conversely, you can't afford to overlook the smallest detail either. After all, unless it responds and even anticipates the needs of the individuals using it, a network has failed to live up to its potential.

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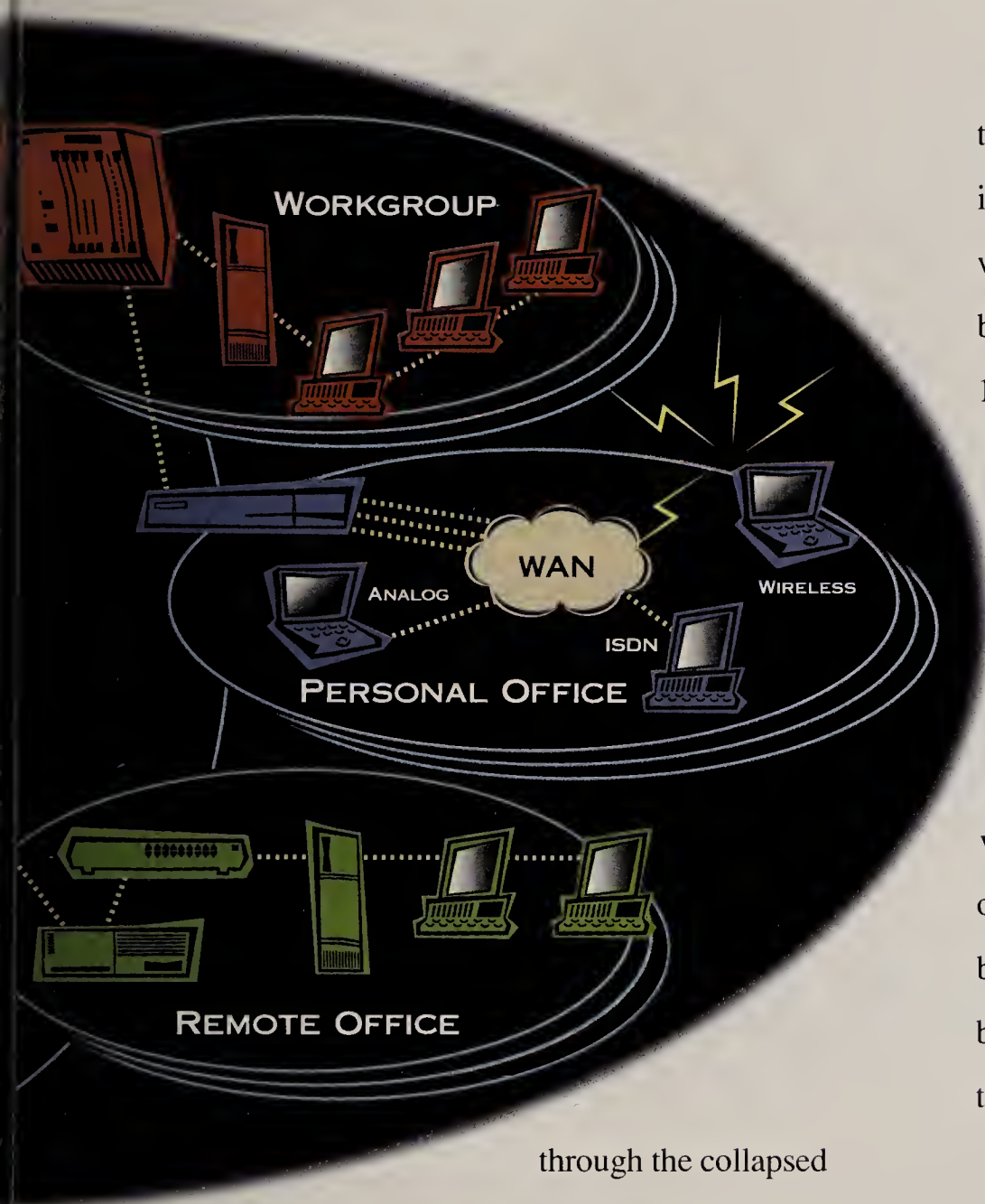
protect your investment.

At the heart of this high-performance network is the "collapsed backbone." It concentrates the LAN backbone connections into a single bridge/router, simplifies the wiring complexity between floors, and centralizes your network's management to help you reduce costs while greatly simplifying administration and support.

Expanding the network then becomes as easy as segmenting the backbone, which means you can solve a bandwidth problem in stages and grow the performance incrementally. Stackable and chassis hubs serve to expand and increase the level of segmentation delivered to users. Traffic is still routed



# er than the sum of its parts. ng the reverse is also true.



through the collapsed backbone. And all complexity is centralized, where administrative costs are substantially lower.

As your company's growth continues, and more bandwidth is called for, servers with existing Ethernet interfaces can be connected directly to switching hubs. Mission-critical resources, such as servers, can be attached to FDDI concentrators for greater throughput.



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## Outsourcing

CONTINUED FROM PAGE 89

stories focus on the process and the turmoil. But when the dust clears from a massive outsourcing effort, what's left of the corporate IS landscape? Who stays behind and how do their lives change?

Life after outsourcing can be hell for the technical staff in its wake. But for others, with the skills and attributes post-outsourced companies need — a strong understanding of their company's business and contract management, planning and consulting skills — life does go on after Armageddon.

### case study

## Outsourced and angry

For Chuck, the outsourcing experience was clearly a one-way ticket to hell.

"When the outsourcing was finally announced, it was, 'Here's the deal: We're selling the entire computer entity to ABC. You have a job with ABC. If you don't take it, you're on the street; no severance.' Ninety to ninety-five percent took it," Chuck says.

Chuck took it, too. In his continued job as the data processing change control coordinator, Chuck would make sure that his former company was aware of any changes that IS — now the outsourcer — planned that would affect customers, so it could sign off on them.

But Chuck soon found that the lack of candor and communication that characterized the initial stages of the outsourcing continued in its aftermath.

"At ABC they told us they offered equivalent pay and benefits, 'so don't worry about the packages you're leaving,'" he recalls. "It never turned out to be that way.

"They tended to treat us like we were morons. They had a very superior attitude: 'We don't do it that way so your way can't be right,'" he says.

**"Outsourcing contracts may be among the largest contracts the corporation handles. You don't want them administered by some MIS guy that's never seen a contract before."**

**Carl Garrison, a senior consultant at Arthur D. Little in Cambridge, Mass.**

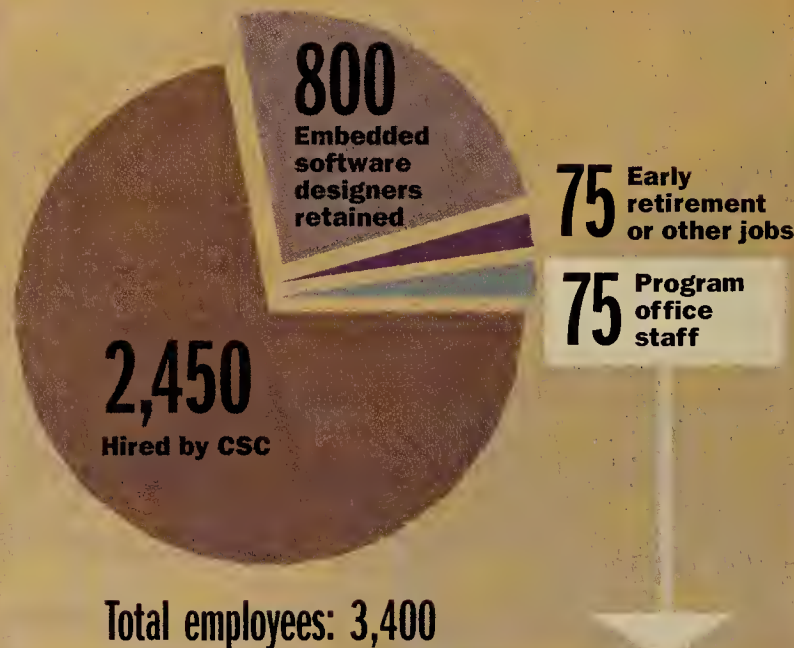
For Chuck, the outsourcing was the beginning of an extended nightmare. "I stayed on [at ABC] for 18 months," he says. "In retrospect it was very foolish."

The outsourcer's treatment chipped away at his self-esteem. "I kept saying, 'I must not be doing this right,'" he recalls. "Eventually, I said, 'It doesn't matter who's right or wrong, this just isn't working out.' By then I had lost all

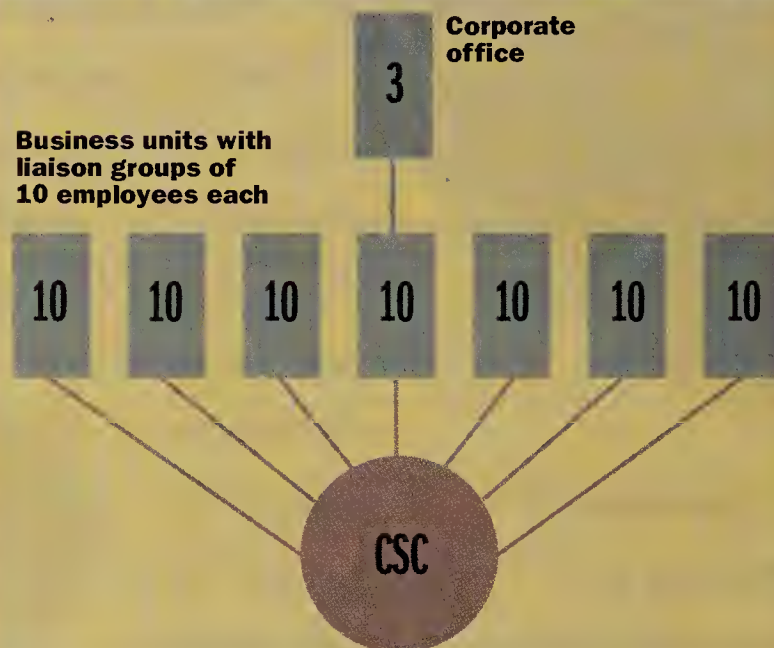
## Redeploying the troops

**In 1991, General Dynamics outsourced the bulk of its IS organization to CSC. The 3,400 IS employees were allocated as follows:**

**Where the employees landed after the outsourcing**



**The program office staff was deployed as follows:**



confidence in my abilities."

The ABC experience so daunted Chuck that when he was offered a position at another company, he doubted his ability to perform. Three years later he's back on track, but there's no mistaking his bitterness for the company that betrayed him and the outsourcer that virtually enslaved him.

"They just believe you're the enemy," he says.

### case study

## Planners thrive at General Dynamics

At General Dynamics Corp., the aftermath of a \$3 billion contract with Computer Sciences Corp. (CSC) in El Segundo, Calif., in 1991 resembles a chief information officer's staff — minus the CIO.

Except for the 800 people who design embedded software for Cruise missiles and space launch vehicles, virtually all of General Dynamics' 3,400 IS staff members went to CSC. Gone are mainframe and midrange computer services, network, PC and workstation support, application maintenance and development, security and disaster recovery. All that remains is a 75-person planning and control staff that manages the outsourcing contract.

Kristine Buitenhek was a supervisor of information resource management operations at the San Diego office. She now oversees the business unit groups that remain.

After the outsourcing, there were liaison groups of about 10 people in each of seven General Dynamics business units and three people in the corporate office. The corporate functions were phased out. Otherwise Buitenhek's department was basically kept intact.

The liaison groups operate essentially as they did before, only with CSC rather than internal IS at one end.

In a typical business unit liaison group, two or three people perform budgeting, resource planning and prioritization for the business unit. Two or three others act as program managers to see that IS needs are identified and satisfied.

If there is a major IS project in development, one of those people may join the CSC develop-

## The importance of being earnest

**I**f communication is important in developing a contract, it's essential to maintaining morale. People who feel they and their colleagues were treated with respect and candor during the outsourcing will feel more secure in their new positions afterward.

Those forced out in an outsourcing aren't the only ones who may suffer. "Managers are the real victims," says a former IS manager who had to cut his work force from 300 to 30. "Those people were like family and friends to me. That was not fun. When it was over, I made up my mind to never be involved in that kind of thing again."

Subsequently, he switched to a different type of job.

By its nature, however, an outsourcing negotiation is

uncertain, and until an agreement is signed, it may be impossible to answer employees' questions.

A certain amount of anxiety is unavoidable, says Mike Beebe, one of three former vice presidents at the Data Systems Division of General Dynamics who helped implement the company's outsourcing contract before joining his troops at CSC.

At General Dynamics, "for six or nine months leading up to the decision [to outsource] there were a lot of rumors: It was hot; it was dead; it was hot; dead," he says.

"About the best you can do in that period is communicate to the degree you can what's going on," Beebe says. "Recognize that there are rumors and very few people know how this is going to sort itself out."



## Rules

for dealing  
with employees:

1

Don't speculate on  
who will survive —  
have answers.

2

Admit to  
uncertainties.

3

Tell what you know  
as soon as you  
know it.

4

Be honest and  
avoid lawsuits  
down the road.

ment team for the duration. One or two people work on the architectural direction of the unit in terms of hardware and software standards for workstations and PCs. Two or three oversee the CSC contract for the group, setting service levels and making sure CSC is meeting them.

"Some of the people that were very technical did transfer to the outsourcer," Buitenhk says. "For example, we centralized all telephone and telecommunication services as part of the outsourced deal."

Business savvy was the key to remaining at General Dynamics after the outsourcing.

"The positions that stayed were user positions," she says. That is, they were people who were at least as important to business functions as they were to information services.

"The intent [of the outsourcing] was to focus pure [information technology] and separate that from people who had the business knowledge," Buitenhk explains. "Now we rely on CSC to help figure out how to put technology into solving problems. There are fewer gray areas as to who does what."

### case study

## BPX adopts a consulting model

There's another kind of IS life in the post-outsourced company: the IS internal consultant.

In anticipation of fierce competition in the oil and gas exploration industry, British Petroleum Exploration (BPX) wanted to strip away everything not considered essential to its business.

As part of that effort, a massive outsourcing changed the face of IS. Starting in 1989, BPX lowered IS spending from \$540 million a year to about \$145 million and cut IS staff, including consultants, from more than 2,000 to 150.

### New and improved

What's left of IS at BPX "is nothing you would recognize as being IS," says Larry Gahagan, principal consultant, global information technology at BPX in Houston.

The new IS organization is built around a consulting paradigm. The operation is characterized by lack of hierarchy and an outward focus. All the traditional titles are gone. In their place is a series of in-house, vendor and senior consultants. BPX has also retained a handful of contract managers and a small number of technical staff, according to David Hall, a global consultant at BPX in Renfrewshire, Scotland.

The in-house consultants work with functional groups to help them understand their IS needs and challenge their assumptions. Other BPX consultants are "on loan" to vendors.

"We put people in the vendors' organization for months, even years, to help them understand our needs," he explains. Gahagan is one of about 30 senior consultants who travel the world troubleshooting.

"I may be project manager at one site, consultant at another. I may work with vendors at another or facilitate strategy sessions at an-

## Out with the old skills, in with the new

**A**fter an outsourcing there's usually a shift toward contract management, quality assurance and negotiations skills.

"Once you outsource you'll be going through something like [request for proposals] negotiations monthly," says Carl Garrison, a senior consultant at Arthur D. Little in Cambridge, Mass. That's because an outsourcing contract covers the baseline business; all additional work costs additional money.

"There's always discussion about whether this thing [you need done] is in the baseline," Garrison says.

These skills may exist in the IS remnant, they may be taught, or they may be brought in from outside, but prudence usually dictates that at least the chief contract administrator be hired for that expertise.

"Outsourcing contracts may be among the largest contracts the corporation handles," Garrison says. "You don't want them administered by some MIS guy that's never seen a contract before."

other," he says. "I might be in Colombia with a bunch of drillers trying to reduce drilling costs. I wear many different hats. It's never dull."

"Previously, most of my focus was internal," Gahagan says. "When you open up, there's a world full of vendors; you look at where to invest your money."

Finally, a "CIO type" directs most of his efforts outside the company, working through various consortia to influence the global IS picture as it affects BPX.

"We want to try to shape the IS marketplace rather than just take what shows up on our doorstep," Gahagan says. "It's a very proactive stance."

The change from IS to an internal IS consulting firm was accomplished with the help of a UK consulting group called Oasis that designed the internal consulting practice and the training that went with it.

The retraining effort was massive. The in-house business consultants, for example, were typically people in the IS group who had business backgrounds. Although they had served as functional/IS liaisons before, there was a dramatic shift in their focus.

"They changed from a system delivery group to a consulting group, which would challenge the need to have the system to begin with," Gahagan explains. "They're expected to work from a global perspective. It took massive re-skilling, but now most of these people could go out and get a job working with a consulting house."

Having tasted the freedom of its new IS design, BPX has no intention of turning back.

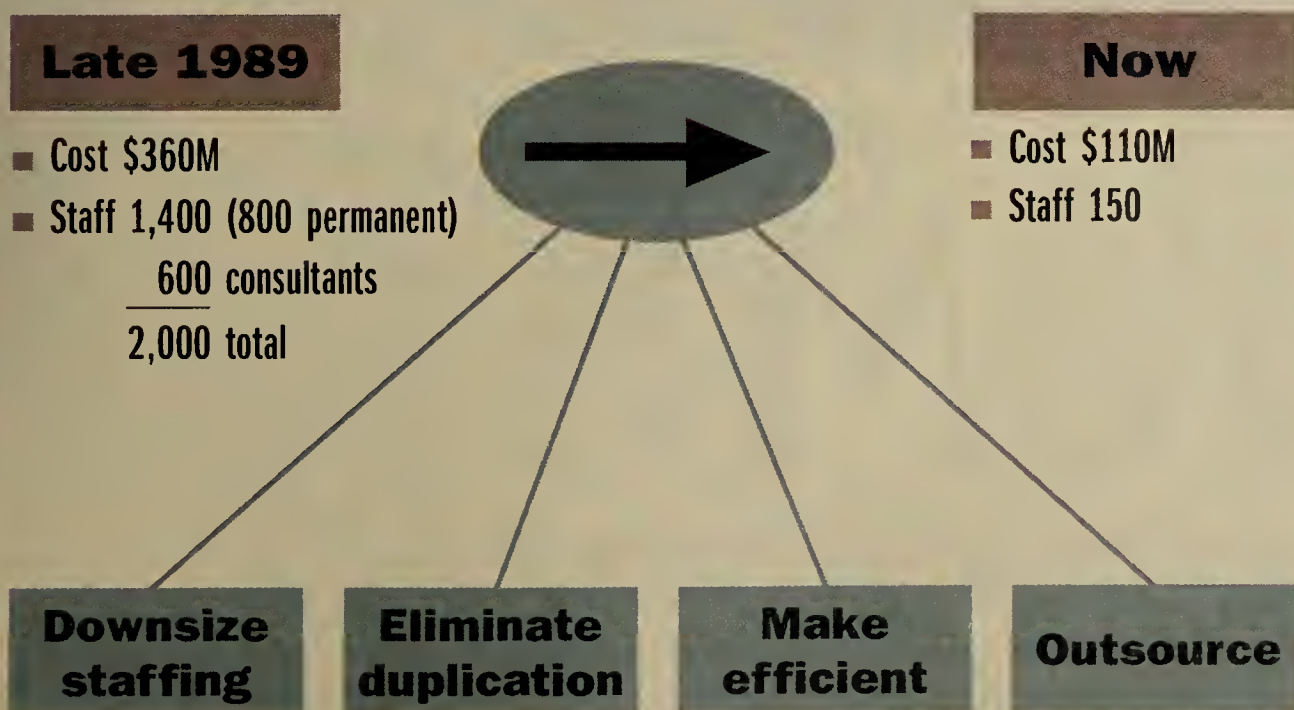
"We don't want to own anything," Gahagan says. "We don't want to have to manage it. We just want it to work."

Melymuka is a free-lance writer in Duxbury, Mass.

## Changing the face of IS at British Petroleum Exploration

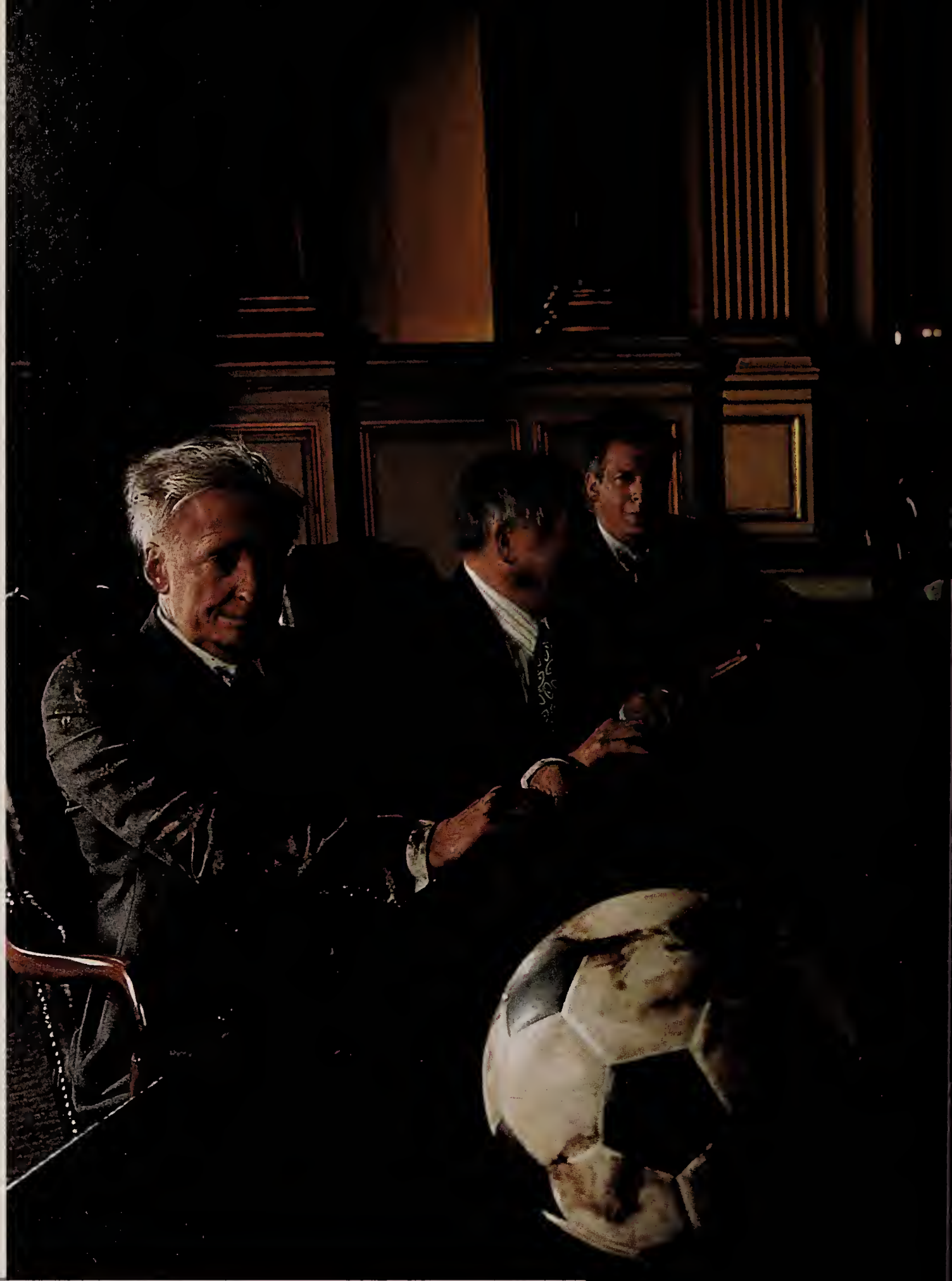
To make itself leaner and meaner in a competitive market, BPX did a massive outsourcing in 1989, stripping away everything not essential to its business.

### Scale of change in BPX's IS unit





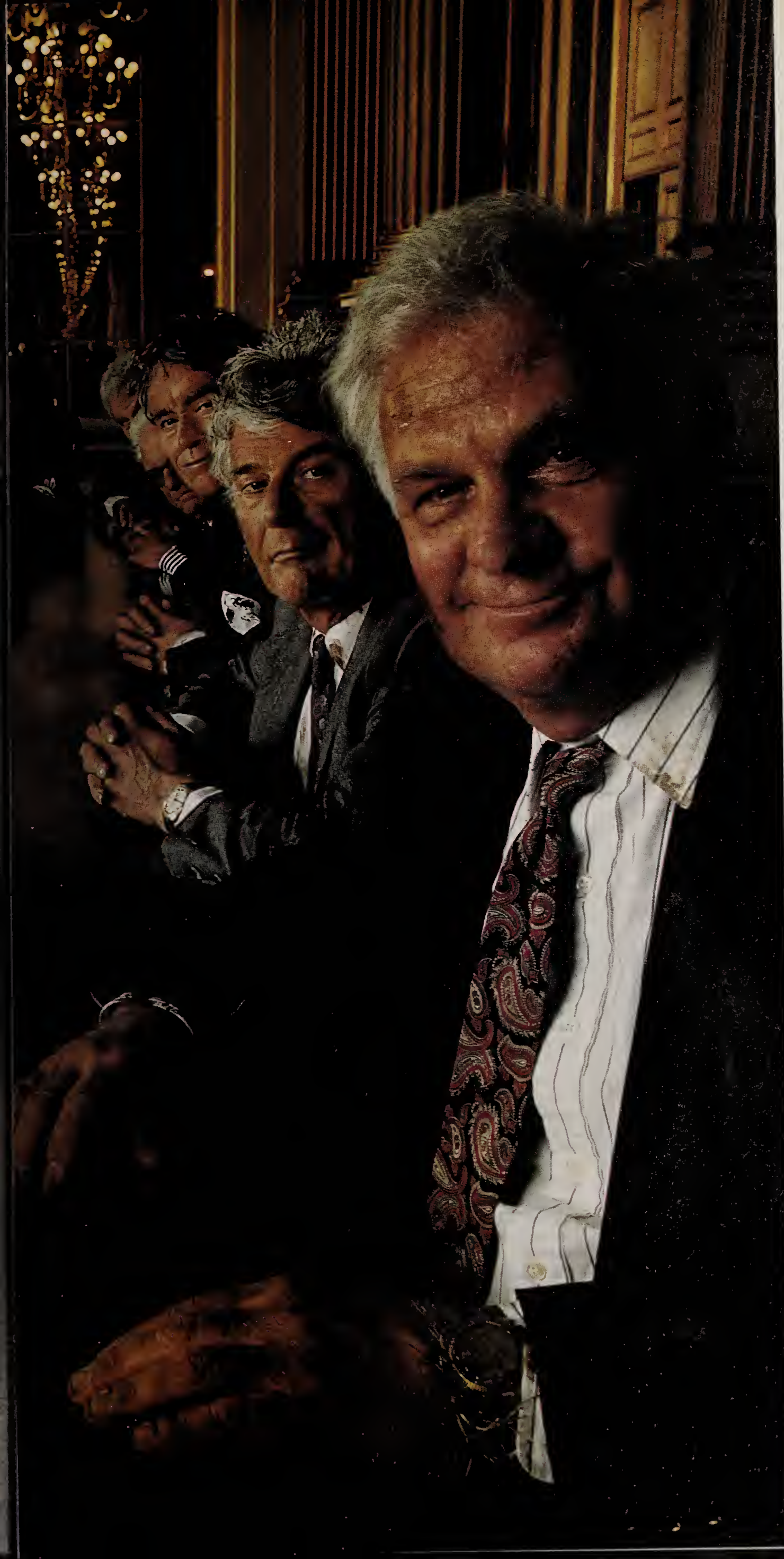
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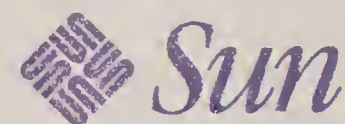
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# CFOs, CIOs and outsourcing

Sasa M. Dekleva

**C**ost savings, liquidity problems and management's desire to focus on mainline business issues are commonly perceived as the main reasons for outsourcing information services.

And because part of the chief financial officer's mission is to seek ways to reduce costs, while chief information officers naturally wish to defend their departments and their jobs, one might expect CFOs to support outsourcing more than information systems executives.

## Myths exploded

But these assumptions were challenged when I recently put them to the test in two separate surveys of CFOs and CIOs. (The first survey was of CFOs and included 365 usable responses. From those responses, the second survey targeted CIOs at the same companies and received 82 usable responses. The CIO survey was larger, with questions for the CFO survey taken as a subset from the CIO survey.)

In both cases, the surveys asked whether the organizations were outsourcing certain services.

One of the questions asked was how many organizations outsourced individual IS services. Surprisingly, despite all

the publicity over the outsourcing of computer operations, this is one of the least outsourced services. Only 7.2% of responding CIOs and 10.9% of responding CFOs said they outsourced this service.

Other findings included the following:

- Of the responding 365 organizations, only 12 outsourced IS completely.
- Most CIOs and CFOs (approximately 65% each) said they have fully or partially outsourced one or more services in their department.
- The most common fully outsourced services included (by CIO/CFO response): disaster recovery (25%/18%), application development (18% each), user training (15%/13%), software maintenance (14%/20%) and hot line assistance (10% each).
- The most common partially outsourced services were (by CIO/CFO responses): software maintenance (39%/31%), user training (37%/47%), application development (35%/47%), microcomputer technical support (35%/31%) and disaster recovery (22%/35%).
- The other IS services seldom outsourced were data network operations

and IS planning.

Another question asked was what originally motivated each organization to outsource.

Surprisingly, cost reduction and cash infusion were not primary reasons. Instead, CFOs rated access to expertise

much higher than any other outsourcing goal. Is this an indication that CFOs mistrust their IS staff, worry about its limited expertise or find it insufficient?

Even more surprising was that CIOs concurred and rated access to expertise even higher than CFOs. This sounds like a clear signal that CIOs also feel that IS professionals are receiving too little education and training. These professionals said they feel unable to

grow professionally at a rate commensurate with the speed of change found in their discipline.

The other dimension of this question was whether outsourcing vendors fulfilled clients' expectations. With few exceptions, both CFOs and CIOs said their outsourcing experience was pretty much what they expected.

Both CFOs and CIOs achieved signifi-

cantly less access to expertise than what they expected. This benefit, however, was still clearly ranked No. 1 among the achieved benefits.

CFOs and CIOs were at odds in the evaluation of outsourcing risks, however, and surprisingly, their concerns seemed reversed to their roles. CFOs rated loss of control over information services as the highest risk. (More than two-thirds of the responding CFOs were responsible for the overall corporate IS function.)

CIOs worried about the business side of such a relationship. They rated the highest risk as vendors that would satisfy only the letter of contracts rather than establish a business partnership. Responses from both CIOs and CFOs also showed that the outsourcing experience was a positive one for each group, with the benefits received almost identical to what they expected. And because CIOs still report to CFOs so often — more than two-thirds of the responding CFOs said they were responsible for the overall corporate IS function — it's a good thing there is more common ground between them than one might imagine. ■

Dekleva is assistant professor of IS at DePaul University in Chicago.

## Intelligence

## Files

### What's on your mind?

What are the Top 10 information technology issues on the minds of executives? Richard D. Koeller wanted to know, so the former vice president of information systems at Whirlpool Corp. conducted his own private, admittedly unscientific, but nonetheless revealing survey of 58 senior executives, chief information officers, academics and consultants.

Koeller found that the No. 1 issue on the minds of all respondents is the value of information technology to the business — actual or perceived. Cost reductions are important but so is leveraging information technology to improve company performance. Many participants are thinking about competitive benchmarking, assessment processes and evaluating outsourcing alternatives.

"Getting your money's worth is critical, not the absolute cost," one senior executive responded.

Four issues received a "very high" rating for importance. They include developing a business-driven information technology plan, facilitating re-engineering projects, providing an internal and external customer focus to a company's information technology efforts and managing the information technology infrastructure to prevent inefficient, re-

dundant and incompatible technology acquisitions.

The respondents indicated that information technology plans are not well-linked to business plans and that information technology is often blamed for re-engineering failures even when

### IT's Top 10 Executive Issues

RANK	ISSUE	IMPORTANCE
1	Value	Highest
2	Planning	Very high
3	Re-engineering	Very high
4	Customer service	Very high
5	Technology/Infrastructure	Very high
6	Management control	High
7	Management processes	High
8	General management	Medium
9	Organization	Medium
10	Personnel	Medium

Source: Richard D. Koeller, president, Koeller & Associates, Chicago

re-engineering is considered the responsibility of business managers.

Management control and management processes were given a "high" ranking on Koeller's Top 10 list. Keeping information technology projects and operations under control and integrating information technology into the normal

management processes of the company were also priorities.

Koeller concludes that IS projects often go awry because management processes do not provide adequate business management participation and ownership.

At the same time, the unique management issues of the information technology function are not being addressed by current management processes.

Koeller says the communication gap between information technology and management is widening at a time when information technology is becoming even more crucial to the success of the business.

All in all, Koeller's list indicates IS has a long way to go before it is truly aligned with business.

### Award winners announced

Connecticut Mutual Insurance Co., the Massachusetts Department of Revenue and the U.S. Air Force's Alaskan Air Command are among the winners of this year's Achievement in Managing Information Technology Awards, sponsored by American Management Systems and Carnegie Mellon University in Pittsburgh.

The insurance company was recognized for a customer service-improving re-engineering effort. The Massachusetts agency won for its child support enforcement system, which boosted compliance from 59% to 76%.

The Alaskan Air Command was hon-

ored for its transportable battlefield and air rescue information system.

### Exchanges merge trading

Members of the New York Mercantile Exchange (NYMEX) and the Commodity Exchange of New York (COMEX) have agreed to merge the leading exchanges involved in oil and gold futures trading. Under the merger, in which NYMEX will pay more than \$60 million to members of COMEX, the two exchanges are expected to cut their expenses by merging redundant computer operations.

Daniel Rappaport, chairman of NYMEX, predicted the merger would help the two organizations cut their combined expenses by up to \$6 million. The merger still requires the approval of the Commodity Futures Trading Commission.

### A vision for the superhighway

The U.S. Department of Commerce has released a report, "Putting the Information Infrastructure to Work," intended to spur public discussion on how people and organizations use the information superhighway. The report looks at opportunities and obstacles in seven key applications: manufacturing competitiveness, electronic commerce, health care delivery, educational learning access, environmental monitoring, library access and government services. To obtain a copy, order PB 94-163383 prepaid from the National Technical Information Service, Springfield, Va. 22161 or call (703) 487-4650.



# Calendar

MAY 22-28

**International Communications Association (ICA) Expo Dallas '94.** Dallas, May 22-23 — Both conference and exposition will focus on strategic issues involved in managing the enterprise network. The full range of communications solutions, from office LANs to intercontinental voice/data networks, will be demonstrated at the exhibits and discussed at the conference. Contact: ICA, Dallas, Texas (800) 422-4636.

**SynOptics Users Group Conference.** Santa Clara, Calif., May 22-25 — Keynotes from SynOptics Communications, Inc. Contact: SynOptics Users Group, Santa Clara, Calif. (408) 988-2400.

**Viasoft, Inc. User Conference.** Phoenix, May 22-25 — Contact: Viasoft, Phoenix, Ariz. (602) 952-0050.

**First Ever Manufacturing Execution Systems Association (MESA) Roundtable.** Chicago, May 23-24 — MESA International is a not-for-profit trade association whose members are vendors of integrated MESA and related technologies, including point solution, hardware platforms, database, systems integration services, data collection technology, controls and consulting services. Contact: Bill Hankanson, MESA International, Pittsburgh, Pa. (412) 781-9511.

**Home Banking Forum.** Chicago, May 23-24 — Theme: "Home Banking in an Interactive Age." Keynote speaker is Wesley C. Tallman, executive vice president of Visa International product and market development and president and chief executive officer of Interlink. Contact: Faulkner & Gray, Inc., New York, N.Y. (212) 967-7180.

**Principles and Techniques for User Interface Design.** Ann Arbor, Mich., May 23-25 — Contact: Engineering Conferences, The University of Michigan, Ann Arbor, Mich. (313) 764-8490.

## Women focus of Hopper conference

The inaugural Grace Hopper Celebration of Women In Computing conference will be held June 9-11 at the Loews L'Enfant Plaza Hotel in Washington.

The conference is sponsored by the Computing Research Association, the Association for Computing Machinery and the Institute of Electrical and Electronic Engineers Computer Society. The conference is named for the late Grace Hopper, the first computer operator in this country and later an admiral in the U.S. Navy.



Grace Hopper

The Grace Hopper Celebration is a technical conference that will highlight discussions by many of the leading women in the computer industry. It will also provide an opportunity to hear women in the computing field discuss their contributions and visions of the future.

The keynote speaker will be Anita Jones, director of defense research and engineering for the Department of Defense. For information, call Pavan Diwanji at (415) 336-3700, or send E-mail to hopper-info@pa.dec.com.

**Comdex/Spring '94 and Windows World.** Atlanta, May 23-26 — Contact: The Interface Group, Needham, Mass. (617) 449-6600.

**DB/Expo '94: Database, Client/server & Technology Exposition & Conference.** San Francisco, May 23-27 — Keynote speakers: Bill Gates of Microsoft Corp., Philippe Kahn of Borland International, Inc., Larry Ellison of Oracle Corp., Steve Jobs of Next Computer, Inc. and Umang Gupta of Gupta Corp. Contact: Blenheim NDN, Inc., Mountain View, Calif. (415) 966-8934.

**Re-engineering Business Processes.** Itasca, Ill., May 24-25 — Contact: David W. Burke, Sandra Conn Associates, Chicago, Ill. (708) 395-7990.

**First Annual On-demand Digital Printing & Publishing Strategy Conference & Exposition.** New

York, May 24-26 — Targets commercial printers, publishers, quick-copy print providers and service bureaus, as well as corporate, government and institutional offset and laser printing, high-speed copying and IS/data centers. Contact: Expocon Management Associates, Inc., Fairfield, Conn. (203) 256-4700.

**LAN/Securities and Exchange Commission '94.** Washington, May 24-26 (Also one-day optional preconference workshops on May 23 and optional postconference workshops on May 27) — Focus: LAN security and control challenges. Contact: Pam Bissett, MIS Training Institute, Framingham, Mass. (508) 879-9792.

**Strategy Conference and Exposition.** New York, May 24-26 — Contact: Expocon Management Associates, Inc., Fairfield, Conn. (203) 256-4700.

**12th Annual Information Management Conference.** New York, May 25-26 — Contact: The Conference Board, Inc., New York, N.Y. (212) 339-0345.

**Annual 1994 Midwest Computer Show.** Rosemont, Ill., May 25-27 — Contact: Illinois Certified Public Accountant Society's Continuing Professional Education Department, Rosemont, Ill. (312) 993-0393.

MAY 29-JUNE 4

**Spring Internet World '94 & Document Delivery World '94.** San Jose, Calif., May 31-June 3 — Sponsored by *Internet World* magazine and The Commercial Internet Exchange. Contact: Schwartz Public Relations Associates, New York, N.Y. (212) 677-8700.

**CAUSE/Coalition for Networked Information Regional Conference.** Philadelphia, June 1-3 — Sponsored by The Coalition for Networked Information. CAUSE is the association for managing and using information technology in higher education. Contact: CAUSE, Boulder, Colo. (303) 449-4430.

**Re-engineering: The Implementation Perspective.** Cambridge, Mass., June 1-3 — The conference provides an introduction to the concepts and objectives of re-engineering with an analysis of the business factors driving it. The instructor will be Michael Hammer of the Center for Re-engineering Leadership in Cambridge, Mass. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555.

**1994 AME Best of the Midwest Regional Conference.** Chicago, June 2-3 — Theme: "Leadership Beyond the '90s." Keynote speakers: Allan Cox, the head of Allan Cox & Associates, and Phillip R. Thomas, founder and chairman of Thomas Group, Inc. Contact: Association for Manufacturing Excellence (AME), Wheeling, Ill. (708) 520-3282.

## Executive

## Track

**American Express Bank Ltd.** in New York has announced the appointment of **Martin Donnelly**, 47, as executive director of global client services in New York.



His responsibilities will include coordinating and delivering standard systems and operational products on a worldwide basis and centralizing the various country, regional

and area operations into a single integrated entity.

Prior to his appointment, Donnelly was global business channel director at Citicorp. He was responsible for directing the design, development and support of Citicorp's commercial banking systems infrastructure in more than 70 countries. He began his career at Citicorp in 1974 as a systems officer and project manager.

The National Association of State Information Resource Executives (NASIRE) has announced changes in appointments for four of its members. **Curt Pederson** of Oregon has been appointed chief information officer at the Information Resources Management Division of the Oregon Department of Administrative Services. He replaces Jerry Schmitz, who retired earlier this year.

**Paul Maxson** of New Jersey has been appointed acting administrator of the Office of Telecommunications and Information Systems of the New Jersey Department of the Treasury. He replaces Elaine Davis, who has left New Jersey state government.

**John Ruffin** of Mississippi has resigned as executive director of Mississippi's Central Data Processing Authority.

Also, **John Thomas Flynn** of Massachusetts, director of management information systems and finance, has been appointed to serve as one of NASIRE's two eastern regional directors.

**Erling G. Anderson** has been appointed director of IS at **Community General Hospital of Sullivan County** in Florida.

**Robert O. Wucher** has been appointed

director of clinical IS at **The Hospital for Sick Children** in Washington. He was previously director of IS at Fairfax Hospital in Falls Church, Va.

**Janice M. Kastens** has left her position as director of IS resources at **Lutheran Medical Center** in Wheat Ridge, Colo., to join **Chi Systems, Inc.** in Ann Arbor, Mich., as senior consultant.

**Fortis, Inc.** in New York, an insurance and financial services company, has announced the appointment of **Gordon**



**Jager** as vice president of systems architecture. Jager will oversee all facets of systems architecture design.

Jager began his career with Fortis in 1975 as a programmer trainee. He has progressed through the ranks to various high-level management posts including senior IS officer, senior group management information officer and senior benefits officer.

Prior to his latest appointment, he was second vice president of application design.

**Kim A. Hansen** has left her position as director of management information systems at **Holmes Regional Medical Center** in Melbourne, Fla., to take a position as an account sales representative at IBM's **Rolm Systems** in Tampa, Fla.

**Karen Antion** has been appointed CIO for the Port Authority of New York and New Jersey. She reports to Barry Weintraub. Her responsibilities include program strategies, direction and leadership for the IS department. She was previously CIO for the city of Hartford, Conn.

**Priscilla Tate** has left her position as executive director of the Microcomputer Managers Association in Warren, N.J., to concentrate on independent consulting. **Alex Kask**, a founder of the Microcomputer Managers Association and former president of the organization, is the interim director.

**USLife Corp.** in New York has announced the appointment of **Louis Lam**, 30, as assistant vice president of corporate planning. Prior to the appointment, Lam was an IS analyst at USLife.



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**Black goes with everything.**

If your business plan includes client/server computing, rest assured that the new AS/400® Advanced Series will coordinate impeccably. Everything about it is designed with a new openness and interoperability, to thrive in client/server environments. There's open client access, to serve OS/2®, Windows™, DOS, Macintosh or UNIX® systems with equal ease and security. Powerful features that provide open database access and protocol-independent networking are built in. There's a wide choice of AS/400 Advanced Servers—high performance processors fine-tuned for client/server duty. And thousands of AS/400 client/server applications are ready today. In short, the new AS/400 is so easy to implement and manage, it represents a new generation in client/server computing: a system designed to stand out, even as it blends in. For additional information, call 1 800 IBM-6676, ext. 641.

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The new AS/400 Advanced Series from





# Re-engineering the Workplace

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RE-ENGINEERING  
THE  
WORKPLACE:

CUSTOMER  
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# Best face forward

*From service desks to enterprise shake-ups, companies re-engineer to turn customer service talk into action*

**T**HE TYPICAL U.S. COMPANY TODAY BLOWS ENOUGH HOT AIR ABOUT CUSTOMER SATISFACTION TO heat all its buildings for the next year. Pipe in the clatter over re-engineering and it's a formidable blast of blather indeed.

But talk is (usually) cheap. It's still the rare organization that actually blows away customers with super service and satisfaction. True, Ritz Carlton, The Home Depot, Inc., Wal-Mart Stores, Inc. and a handful of others walk the walk. In such firms, training, management, processes and technology combine beautifully to coddle customers.

In many companies, pleasing purchasers remains an uglier struggle. Petty politics, technophobia, technomania and — ironically — the pursuit of short-term profits doom many businesses (and their customers) to mediocrity.

By JOSEPH E. MAGLITTA

Yet according to several recent surveys, a richly financed revolution in customer-centric re-engineering is in full swing. Consider: A CSC Index, Inc. study says U.S. companies will spend \$1 billion on customer-oriented technology in 1994. Studies by Arthur D. Little, Inc. and Deloitte & Touche (see chart at right) place field service, order processing, help desks, marketing and other customer-focused functions at the top of the list of re-engineering priorities.

Some, such as Bankers Trust Co. (page 102) and Levi Strauss North America (page 106), are redesigning carefully chosen key processes. At the Fort Myers News-Press (page 101), a new AS/400-based system helps advertising representatives better service new accounts and prospects. Norfolk Southern Corp. (page 102) re-engineered its national service operations, centralizing 52 offices into one. Others, including Spartan Stores, Inc. (page 107), are shooting for a complete, customer-focused transformation.

Regardless of scope, the smarter firms speak of "customer management" and look beyond single functions to every place where buyer meets seller.

The most successful are discovering that good customer-pleasing re-engineering is like good selling: Say and do as much as needed, then do a little more.

Maglitta is *Computerworld's* senior editor, corporate strategies.

## THE CUSTOMER IS ALWAYS RIGHT — FOR RE-ENGINEERING

*Functions that directly impact customer satisfaction made up more than 50% of all re-engineering projects tackled by more than 400 large U.S. and Canadian companies. Other polls found similar results.*

**17% ORDER  
PROCESSING**

**15% CUSTOMER  
SERVICE**

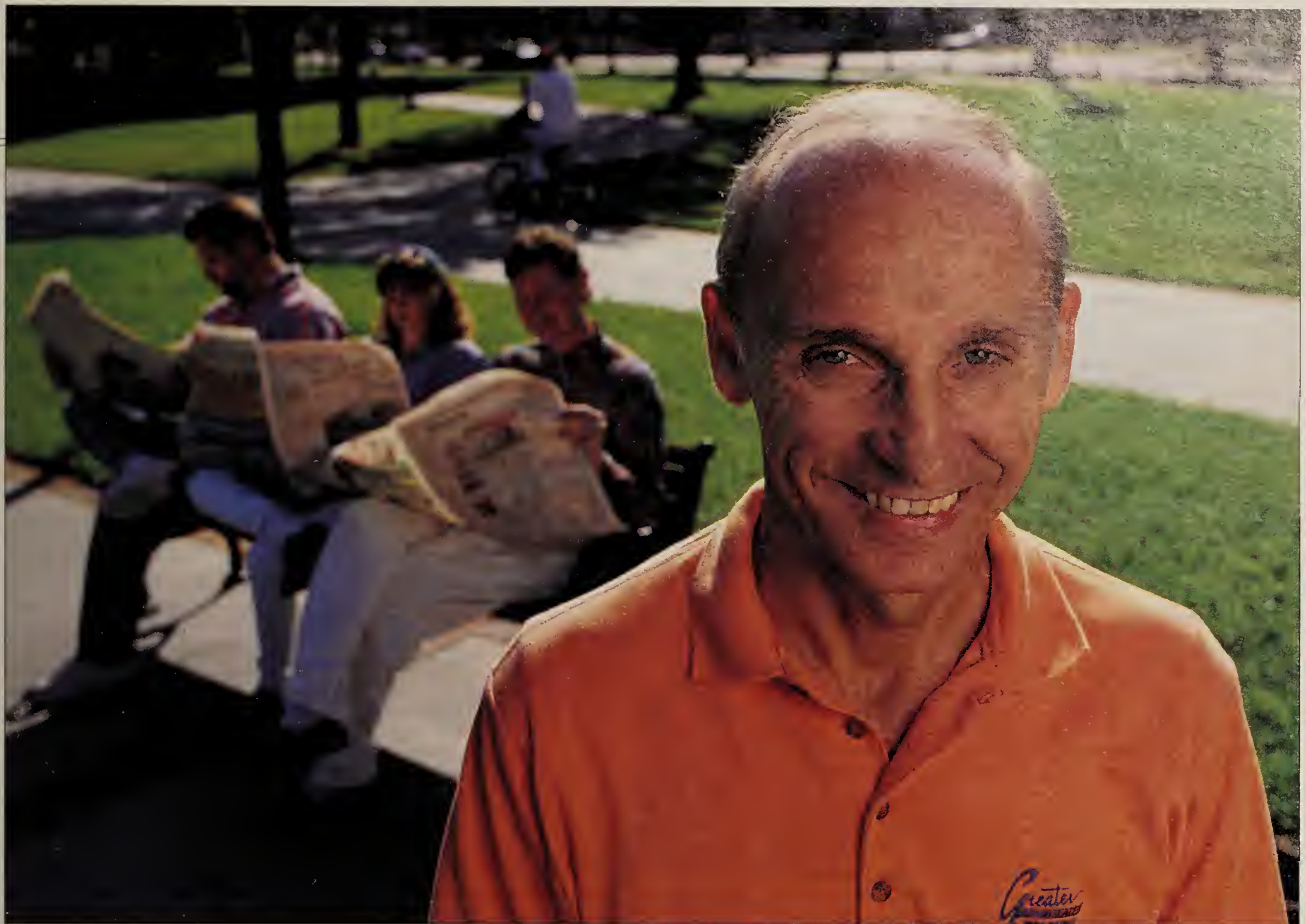
**9% SALES AND  
MARKETING**

**6% DISTRIBUTION**

**5% INVENTORY AND  
WAREHOUSE**

Source: Deloitte & Touche, Wilton, Conn.





REO MORGAN



## FORT MYERS NEWS-PRESS

**D**ICK ETHIER WOULD LIKE TO PUT MERCHANTS' ADS IN readers' hands with the same accuracy that paper carriers hand the *Fort Myers News-Press* on west Florida lawns.

Ethier, director of MIS at the 135,000-circulation morning daily, also wants to minimize delivery and billing hassles for new readers in five areas around Lee County — for a reader who might mistakenly think he lives on "Nine-Iron Court" but who really lives on "Nine-Iron Drive," for instance.

He's hoping to accomplish both goals (and boost sales) with new processes and information systems aimed at finding, managing

and retaining small customers. The publication's parent, Gannett Co., is hoping so, too.

Indeed, the nation's largest newspaper publisher would like to transplant several customer-focused pilot projects under way at the *News-Press* to its 81 other dailies. Judging from early results, other Gannett papers should be eager to read all about it.

Take the new telemarketing process and system. Like many small and medium-size newspapers, the

*News-Press* tracked advertisers informally. A staff of 30 reps kept handwritten notes on sales calls.

Last fall, Larry Sackett, Gannett's corporate director of database marketing, asked Ethier to pilot a new way to locate and service advertiser accounts.

An IBM System/38 user, Ethier had never even seen an AS/400. But soon he was building an "opportunity database" using TeleMar software from Information Management Associates in Trumbull, Conn. Files from Dun & Bradstreet and Database America as well as existing System/38 data were uploaded and merged.

Simultaneously, Ethier and the paper's marketing department rethought the sales process. They decided to off-load up-front work previously handed by reps to one full-time and one part-time data entry operator and a systems administrator. Using the system, the team identifies prospects and generates lead sheets and appointment schedules, which are then assigned to the proper rep.

The new approach has boosted sales by 40%, Ethier says. It has also blurred the line between sales and service, he adds, for the better.

"We now know more about cus-

tomers, and we have more detailed information so we can serve them better. Everybody wins."


How? The 19,500 prospects and advertisers are categorized by SIC, geography, location, type of business, buying habits and other demographic information. So an advertiser interested in an automotive special can be alerted ahead of time, for instance.

The new approach helps buyers figure the best combination of ad frequency, variety, size and seasonal approach. In winter, for example, businesses like to run big, splashy ads. Off-season, they prefer target marketing.

"Say Kash n' Karry comes to us. They say, 'Can you do this insert? I only want it delivered in a five-mile radius around my store.' We can do that kind of direct target marketing now. We'll be able to do it a lot better in the future."

The effort cost about \$45,000 for software, programming time and maintenance, Ethier says.

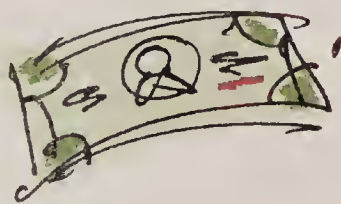
He has big plans for the future. IS is now linking TeleMar with the paper's major advertising application and plans to merge it with editorial and circulation databases.

"No one falls through the cracks anymore," he says. 

**A PILOT  
PROJECT RUN  
BY DICK ETHIER  
OF THE FORT  
MYERS  
NEWS-PRESS  
COULD  
EVENTUALLY  
CHANGE HOW  
ADVERTISER  
SERVICES ARE  
HANDLED AT  
ALL OF  
GANNETT'S 81  
NEWSPAPERS**



# RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE



## BANKERS TRUST COMPANY

**"THE ONLY TIME I WANT SOMEBODY GETTING UP IS TO GO to the bathroom."** The Bankers Trust Co. executive was only half-joking. The serious message: Speed up service and reduce the time account reps spend away from desks chasing paper, microfiche and printed reports.

Two years ago, the New York-based trading house's domestic custody department did just that.

The result: a streamlined process that uses a system based on Novell, Inc. LANs and Lotus Development Corp.'s Notes to handle calls from U.S. and offshore banks, insurance companies and other corporate investors.

Already, the new approach has saved thousands of research hours and eliminated the need to print 50,000 report pages a day, says Roger Porcella, vice president of global assets technology. And it has smoothed dealings among bank offices, he adds.

"With mortgage-based securities there are always questions about payments and rates," Porcella explains.

For example, a caller might ask why his interest rate was 2% when a newspaper quoted 3.4%. It is a simple question, but one that often triggers a lengthy paper pass-around. Previously, some 100 account administrators wrestled with dumb terminals, screen dumps, handwritten forms and thousands of pages of paper reports. For older cases, microfiche was mailed in from New Jersey.

### Time spent

"People would stop doing work, get up from their desk, walk around, look at old reports, get on-line with the [IBM] 3090 mainframe. Getting an answer could take a week," Porcella says. Most days bring 20 to 30 complex calls.

So Porcella, another information systems worker and two independent consultants set out to devise a new approach. Their solution: electronic "case files." The idea was to make all necessary information, whether it originated in-house or not, accessible from a PC. They hoped to reduce handoffs and runarounds.

In late 1992, LAN installation began. Users were called in to help design the new flows and system — dubbed "BT Edge." New code was kept to a minimum — a small amount in Visual Basic. The project went live in January 1993.

Now when a customer phones with a question, administrators call up the client's Notes-based "case" on an IBM PS/2 Model 90 running Windows. Problems that can't be handled locally are kicked over leased lines and Cisco Systems, Inc. routers to a Bankers Trust office in Nashville.

Since BT Edge went on-line 16 months ago, most requests are handled in minutes, Porcella says. In the worst cases, requests get answered on the same day.

Improved data access, storage and distribution anchor the redesign. Each night, report data is downloaded to FileNet Corp. optical jukeboxes. Users access "near-line" data and images with Stor/QM from Microbank Software, Inc. Files are moved about with workflow software from Action Technologies, Inc.

In January, Porcella's group began upgrading to Notes 3.0 and installing TCP/IP and IBM's NetView. The system links to an in-house customer notification system at the bank's central data center in New Jersey. "It's not been easy," Porcella says. "You can't underestimate the communications problems," especially with IPX.

Yet he says the headaches have been worth it. Besides huge reductions in response times, the redesign has allowed 27 researchers to shift departments into more valuable roles, he says.

And the goal of never leaving desks? "We can't actually achieve it," Porcella jokes. "But we've come close."

### TIPS FOR CUSTOMER-DRIVEN RE-ENGINEERING



SURVEYS AND INTERVIEWS ARE OK. BUT THERE'S NOTHING LIKE WORKSHOPS AND PHYSICAL OBSERVATION TO REALLY UNDERSTAND WHAT MAKES YOUR COMPANY'S CUSTOMERS HOOT.



WHY NOT VIDEOTAPE A DAY IN THE LIFE OF YOUR CUSTOMERS?



FANTASY IS CHEAP BUT OFTEN VERY PROFITABLE. IMAGINE WAVING A MAGIC WAND THAT COULD SOLVE THEIR MAIN PROBLEMS. WHAT GOES AWAY?



WHEN YOU'RE DONE, YOU'LL HAVE A GOOD LIST OF THINGS THAT MAKE YOUR EXTERNAL CUSTOMERS HAPPY — IN THEIR OWN WORDS.

Sources: Francis Goullart, Gemini Consulting, Cambridge, Mass.; *Building Market-Focused Organizations* by Michael J. Lanning and Lynn W. Phillips; Louis Fried, SRI International, Menlo Park, Calif.



## NORFOLK SOUTHERN CORPORATION

**ONE VOICE, AROUND THE CLOCK. THAT'S WHAT** Norfolk Southern Corp. wanted callers seeking information on shipping, billing, tracking and scheduling to hear.

No more handling scattershot inquiries at 52 sales offices around the country. No more limiting service to 8 a.m. to 5 p.m. Monday through Friday.

There's plenty to track: The \$5 billion transportation holding company runs a major freight railroad with 2,048 locomotives and 107,400 cars. It also owns trucking firm North American Van Lines, Inc. Both businesses haul enough "ton-miles" to bring in a staggering \$107 billion in revenue each year.

Even so, management wanted to make "24-hour-a-day by seven-day-a-week" service as easy for customers as dialing a single, nationwide 800-number. So in 1991, the Norfolk, Va.-based firm took a big step back and began rethinking how it handled customer calls.

The culmination of three years of intensive process, organizational and technological thought opened in Atlanta last fall.

The company's new National Customer Service Center gives customers one-stop access to all Norfolk's services, director Gene Dorminey says.

Now, common queries about shipping weight, estimated arrival times, diversions, expediting and more are handled quickly by a reorganized, newly centralized staff using sophisticated computer/telephone integration.

To facilitate the re-engineering, Norfolk restructured national sales. All but 13 strategically located branches were closed, and support functions were shifted to Atlanta. There, 52 reps were regrouped into one of six "commodity groups." Each specializes in a key area such as chemicals, metals or agricultural goods.

System work began in mid-1992, 18 months before implementation. The firm's information systems group and AT&T Corp. created and mapped technology strategies. Cost Center Solutions in Raleigh, N.C., and Early, Cloud & Co. in New-

port, R.I., handled telephony and screen design, respectively. The first systems rolled out in October 1993, the last in December.

Here's how the re-engineered process works: Customer calls come through an AT&T toll-free Integrated Services Digital Network. An Automatic Number Identification (ANI) service searches a Tandem Computer, Inc. machine for a customer profile.

Within two rings, the customer's computer file is matched with the telephone call. It's then delivered on-line through a screen pop-up on the appropriate agent's workstation, an IBM PS/2 with OS/2, 665M bytes of storage and a 21-in. NEC Corp. monitor.

### One call only

Dorminey says, "80% of inquiries are resolved on the first call. If it cannot be, we make a commitment when we will call back."

The new system handles 2,000 calls a day, he says. Of these, 70% are matched with ANI. Those that are not are sent to an agent who can find or build a record.

Agents can summon help from another department, such as accounting or billing, by simply clicking on an icon or setting up a conference call.

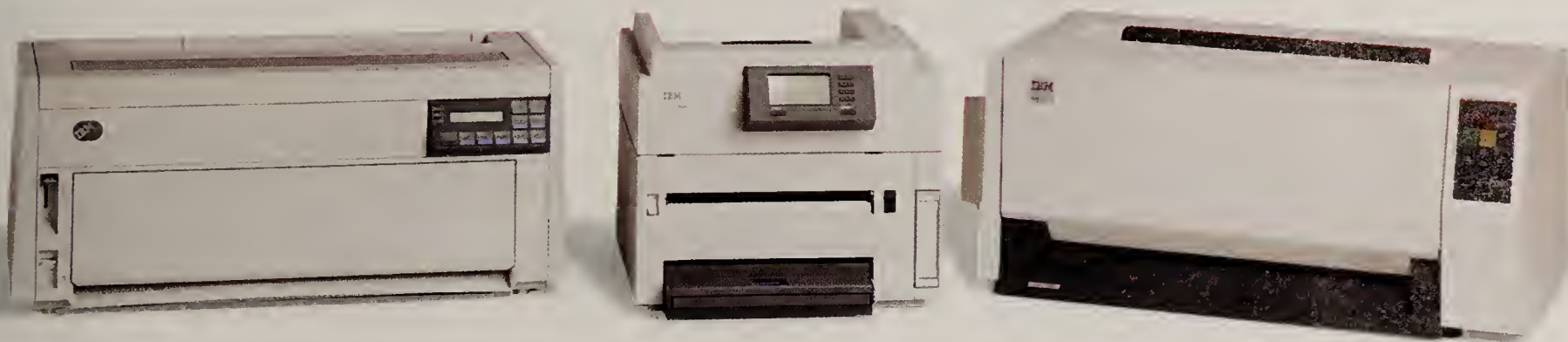
Officials say the new approach brings the company much closer to offering the "seamless transportation" mandated by the American Railroad Association by 1995.

The company won't reveal the project's cost but says it exceeds several million dollars. "This is not a cost-saving measure," Dorminey says. "This is an enhancement to the business."

Dorminey's re-engineering advice? "Be as good as you can be the day you go up. Don't still be prototyping."



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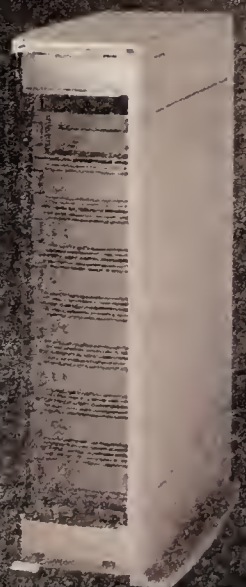


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## RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE



# LEVI STRAUSS

**W**HEN YOU MISPLACE A pair of Levi's, checking under the bed or in the laundry room usually does the trick. But if you are Dillard Department Stores, the hunt gets much more complicated.

Tracking shortages, substitutions and price differences used to be a paper nightmare, says Ralph Sackman, systems specialist in customer receivables at Levi Strauss North America.

The problem: a fragmented production line system. Until January, customer reps had to manually match many sheets of paper with a computerized deduction record. The average claim took 36 days to process.

"One customer sent a debit memo eight different times, and we still didn't have it resolved," Sackman says.

Even in the best cases, he says, "the process was time-consuming and very frustrating for all involved."

It's easy to understand why the first major imaging project at Levi came from a re-engineering effort at its customer claims center in Walnut Creek, Calif.

The 150-person center handles merchandise returns and claims from the thousands of retail outlets that sell Levi's jeans and apparel. Millions of dollars flow—or don't flow—through it daily.

### Imaging solution

So four years ago, Sackman and others looked at the U.S. Automobile Association's use of imaging technology and saw big potential to re-engineer customer claims-handling. They felt certain that faster service, higher employee satisfaction and productivity and better cash flow would result.

After tackling feasibility and return-on-investment studies, Levi's board approved the hiring of Trident Systems, a San Francisco imaging integrator.

On site, basic process flaws turned up quickly. Example: Problems were stored by code, not by customer. That provided a neat record for company managers but did nothing to help customers.

Now, in most cases, one person handles all issues relating to a customer query.

The technology core of the redesigned approach was dubbed Denims — Document Entry and Image Management Sys-

tem. The new system preassembles all relevant documents and computer records and makes them more easily retrievable on-line.

Reps capture and use mainframe customer data using Compaq Computer Corp. DeskPro 50 PCs with 19-in. monitors and a FileNet Corp. imaging and workflow system.

So far, gains are modest. The average time needed to process a claim dropped

to about 30 days, according to Sackman. (The eventual goal is 10 days.)

More dramatic is how customer rep roles have changed. Before, the job was mostly clerical. But after an extensive in-house training program, it became a more technically skilled, service-oriented position.

Future expansion plans call for linking Denims with accounts receivable. This would permit a small group of people to

access the full spectrum of customer records and documents, from credit extension to final resolution.

Long term, Sackman says the "multi-million dollar" re-engineering and imaging project will yield a five-year ROI of 82%.

"Before, we had a production-line approach. Imaging helps bring it back to a single point of contact... back to a natural way of doing things," he says.

## Contrary to p this is not the first step in imp

Ironic, isn't it? Companies across America are being led to think raising productivity through workflow means razing their enterprises right down to the ground.

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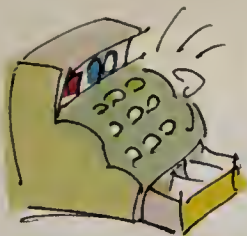


a process can make changes on their own. Without a lot of hand-holding.

And, knowing how closely top management

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## RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE

### SPARTAN STORES, INC.

**S**PARTAN STORES, INC. STARTED OUT TO RE-ENGINEER A CREAKY financial process. It ended up with a plan to transform its entire \$2.1 billion business.

And it's a good thing. During the last few years, hungry foes have eaten into Spartan's lucrative wholesale food distributorship. Supervalu, Inc., Roundy's, Inc., Wal-Mart Stores, Inc., Kmart Corp. and other "alternative format" grocers

often can sell goods cheaper and faster. They do so in part by bypassing Spartan and other middlemen on the supply chain between producers and retailers.

True, after 77 years, the Grand Rapids, Mich.-based cooperative still supplies

more than 550 supermarkets. But in the long term, diversification and cost-cutting were needed.

So in 1992, Spartan started to revamp a key order-fulfillment and billing system. "We had basically been patching up a bunch of old legacy systems on an IBM 3090-400J running MVS/ESA," explains Ken Vink, a senior business analyst who reports to Spartan's 150-person information systems department.

It quickly became clear that modernizing the order system was just a Band-Aid. Vink says. Spartan made a crucial decision to reinvent itself from grocery wholesaler to full-service distributor.

A team of eight Spartan executives, including IS, operations and procurements, worked for three months to hammer out a plan. Hundreds of interviews were conducted with truck drivers, distribution workers and inventory control supervisors. Some 321 processes were identified. The goal: Use technology to reduce that number by two-thirds.

The result was a full-blown, three-year re-engineering initiative called Business Automation Support Environment (BASE). The idea is simple: Apply just-in-time principles to food delivery. That means less food in storage and faster delivery, officials say. Execution proved a bit more complex, though.

Re-engineering is risky, Vink says. "You're basically putting the organization into convulsions. You ride an emotional roller coaster."

#### Efficiency improvement


A philosophy called "Efficient Consumer Response" is supposed to cut costly inefficiencies from the distribution chain. Projects are under way in nine key areas, including distribution, logistics, inventory, order management, financial systems and procurement.

IBM's Integrated Systems Solution Corp. (ISSC) serves as the general contractor, supported by IBM's Business Practice Engineering Group in Dallas and Complete Business Solutions, Inc. in Farmington Hills, Mich. The 60-person team, including six full-time Spartan IS staffers, works from nearby ISSC offices.

Client/server and object-oriented products will anchor the effort. A team led by Bill May, Spartan's vice president of MIS, is still deciding key issues, such as the right mix between commercial and custom software.

A "model supermarket" project will demonstrate the latest in-store processing technology such as radio-frequency terminals and an electronic catalog. A "model vendor" program will explore ways that electronic data interchange can strengthen partnerships with big customers such as General Mills, Inc., RJR Nabisco, Inc. and Quaker Oats Co.

Re-engineering has started to alter how Spartan organizes itself. Inbound and outbound logistics recently were split into separate groups, for instance.

Officials say the multimillion project could yield an annual savings of \$20 million. BASE should be complete in 1995. "If we don't do it, we'll slowly deteriorate. We want to accelerate," Vink says. 

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on key factors like cost, efficiency and productivity.

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## RE-ENGINEERING THE WORKPLACE: CUSTOMER SERVICE

### COUNSEL CORNER

**"A**NY PLACE A CUSTOMER has an interface with the company, we need to be managing, whether it's order-processing or claims or transportation or engineering or scheduling or sales. We need that entire cross-functional team. Customer service, sales, marketing, production, claims and credits — all should have

cameos as well as [information systems]. Leading companies are realizing the value of customer management and of managing that function with better information. How do we decide to increase service, for example? It's a great challenge."

**Pam McNamara**  
Manager of logistics programs  
Arthur D. Little, Inc.  
Cambridge, Mass.

"CUSTOMERS TODAY ARE BECOMING more demanding. They expect more quality and more service. But you can involve them in decision-making at multiple levels.

"On the Boeing 777, for example, Boeing's design team brought in their biggest customers, United and American. They had engineers designing the whole plane in ways you wouldn't think of. Things like seats that could move and be reconfigured. They made a lot of design changes because they were the people who really knew the end users. A lot of companies will start with a couple of functions such as help desk or order-processing. Do what you can."

**Linda Schwartz (pictured)**  
Consultant  
Towers Perrin  
San Francisco

"IN THE 'CASE WORKER' MODEL, AN individual performs activities previously performed by many, such as order-management, order-processing, service and help desk.

"To get started, prototype the idea with one person. Take an individual, make him a case worker and build a team around him. Assign him one or two or three customers. Let him do everything — write the letters, handle the orders. The principle is one customer, one person. That way you can do 'mass customization' — different things for different customers at the same time.

"The first challenge is getting others to participate. You'll want to get an [organizational development] specialist or behavioral specialist involved. Get them to form the team. Next, get top-down sponsors. That's often the role of outsiders. You have to manage groups both inside and outside. If one person can do it, you can create an incredible human dynamic."

**James Gilmore**  
Principal  
Cleveland Consulting Associates  
Cleveland

"CLEARLY, THE LINE BETWEEN companies and customers has been fading. But what activities does a company do that will allow it to deal with defections on a systematic basis?

"A lot of companies handle such problems ad hoc: The first thing you do is blame the customer. But that's not a practice equated to long-term retention. What we are really looking for is a measure of 'dissatisfaction' in field service, order-fulfillment and other functions.

"Ultimately, the vision most people are headed toward is letting the customer define satisfaction and what level of service they need."

**Marc Rubin (pictured)**  
Manager, customer  
management practice  
Arthur D. Little, Inc.  
Cambridge, Mass.

*The above ideas for action and consideration were excerpted from Computerworld interviews with leading customer-service consultants.*

Aug 07

Aug 08

Aug 09

Aug 10

Aug 11

Aug 12

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Trade and business press hail workflow as the method of choice for supporting business process re-engineering and automation. Workflow technology keeps information flowing properly within an organization's framework and insures that the proper items make it to the proper people at the appropriate time. Workflow '94 will answer key questions to be asked by any organization planning to implement or currently implementing workflow technology.

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1994 Finalists nominated by the Computerworld Smithsonian Awards Chairmen's Committee:

#### **BUSINESS & RELATED SERVICES**

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CDMA Wireless Technology

Nominated by Price Waterhouse

##### **LDS Hospital**

Care Analysis Database

Nominated by Arthur D. Little, Inc.

##### **PepsiCo Food Systems (PFS)**

CASTLE Initiative

Nominated by Price Waterhouse

##### **Kmart Corporation**

Seasonal Merchandise Management System

Nominated by Intel Corporation

##### **Mervyn's, Inc.**

Retail Inventory Management Systems

Nominated by Sequent Computer Systems, Inc.

#### **EDUCATION & ACADEMIA**

##### **Institute for Research on Learning**

Middle-school Mathematics through Applications Project

Nominated by Xerox Corporation

##### **National Captioning Institute Inc.**

Closed Caption TV and Video

Nominated by Price Waterhouse

##### **Syracuse University, ERIC**

Clearinghouse on Information

AskERIC

Nominated by NYNEX Corporation

##### **National Geographic Society,**

##### **Educational Media Division**

National Geographic Kids Network

Nominated by EDS

##### **University of Los Angeles**

Rebuild Los Angeles

Nominated by Silicon Graphics, Inc.

#### **ENVIRONMENT, ENERGY & AGRICULTURE**

##### **Los Alamos National Laboratory**

Neighborhood Environmental Watch Network

Nominated by Digital Equipment Corporation

##### **Marine Spill Response Corporation**

Spill Operations System

Nominated by EDS

##### **Ariel Research Corporation**

International Chemical Regulatory

Monitoring System

Nominated by SAS Institute, Inc.

##### **South Coast Air Quality**

Management District

Emission Reporting System

Nominated by Microsoft Corporation

#### **The Nature Conservancy**

The Natural Heritage Network

Nominated by Dell Computer Corporation

#### **FINANCE, INSURANCE & REAL ESTATE**

##### **Connecticut Mutual Life Insurance Co.**

Integrated Workstation Project

Nominated by FileNet Corporation

##### **American Express**

Genesis

Nominated by Texas Instruments

##### **General Motors**

Electronic Funds Transfer

Nominated by EDS

##### **Visa USA**

VisaNet

Nominated by CompuServe

##### **National Association of Securities Dealers (NASD)**

Distributed Association Member Support

Nominated by Sequent Computer Systems, Inc.

#### **GOVERNMENT & NON-PROFIT ORGANIZATIONS**

##### **Maryland Department of Human Services**

Electronic Benefit Transfer

Nominated by Price Waterhouse

##### **Milwaukee County Sheriff's Dept.**

Civil/Criminal Justice Information System

Nominated by Price Waterhouse

##### **City Net, Inc.**

CityNet

Nominated by U. S. Robotics, Inc.

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# New Heroes

Smithsonian Institution thank the  
their work in nominating entries and  
es to the finalists.

## CHCS Program Office Assistant Secretary of Defense (Health Affairs)

Composite Health Care System  
Nominated by SAIC

## Massachusetts Executive Office of Environmental Affairs

Environmental Protection Integrated  
Computer  
Nominated by EDS

## MANUFACTURING

### Ford Motor Company

#### FASTER

Nominated by Cray Research, Inc.  
**Silicon Graphics, Inc.**

#### DocVision

Nominated by CIMLINC, Inc.

### Eastman Kodak, Dental Division

#### Systems Consolidation

Nominated by SAP America

### Mazda U. S. Division System Services

Quality Information Management  
System

Nominated by Madge Network Systems

### Convex Computer Corporation

#### Integrated Business Applications

Nominated by SAP America

## MEDIA, ARTS & ENTERTAINMENT

### Fairway Technologies

#### Retail Digital Distribution System

Nominated by IBM Corporation

### DirecTV and National Rural

#### Telecommunications Cooperative

DirecTV for Rural America

Nominated by Price Waterhouse

## Maxis

### SIM Product Line

Nominated by Intel Corporation

### Carnegie Mellon University

#### The Networked Virtual Art

Museum: The Temple of Horus

Nominated by Intel Corporation

### Industrial Light & Magic

#### Special Effects and Computer

Graphics in "Jurassic Park"

Nominated by Silicon Graphics, Inc.

## MEDICINE

### Klinikum der Stadt Mannheim

#### Childbirth Simulation

Nominated by Cray Research, Inc.

#### S& EDS

### Mayo Clinic

#### ANALYZE™

Nominated by Booz•Allen Hamilton, Inc.

### Cuba Memorial Hospital

#### Telemedicine, Medical Education

& Community Support

Nominated by Sprint

### Johns Hopkins University

#### Characterization of Choroidal

Blood Flow

Nominated by Price Waterhouse

### Veterans Administration

#### Medical Center

#### Functional Electrical Stimulation

Nominated by Digital Equipment

Corporation

## SCIENCE

### Brown University

#### 3D Modeling of Metallic Structure

Nominated by Sun Microsystems, Inc.

### Johns Hopkins University

#### Genome Database

Nominated by Sybase, Inc.

### Dupont

#### Alternative to Chlorofluorocarbons

Nominated by Cray Research, Inc.

### Battelle Memorial Institute

#### Optical Digital Recording

Nominated by Intel Corporation

### Los Alamos National Laboratory

#### Parallel Ocean Program

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## TRANSPORTATION

### Union Pacific Railroad, The Atchison

#### Topeka & Santa Fe Railway Co.

#### Automatic Equipment Identification

Controller

Nominated by Price Waterhouse

### Hong Kong International Terminals

#### Limited

#### Terminal Operations Planning System

Nominated by Sun Microsystems, Inc.

### USAir, Inc.

#### Excalibur Revenue Management Systems

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### Northwest Airlines Reservation Sales &

#### Service

Inbound Call Management

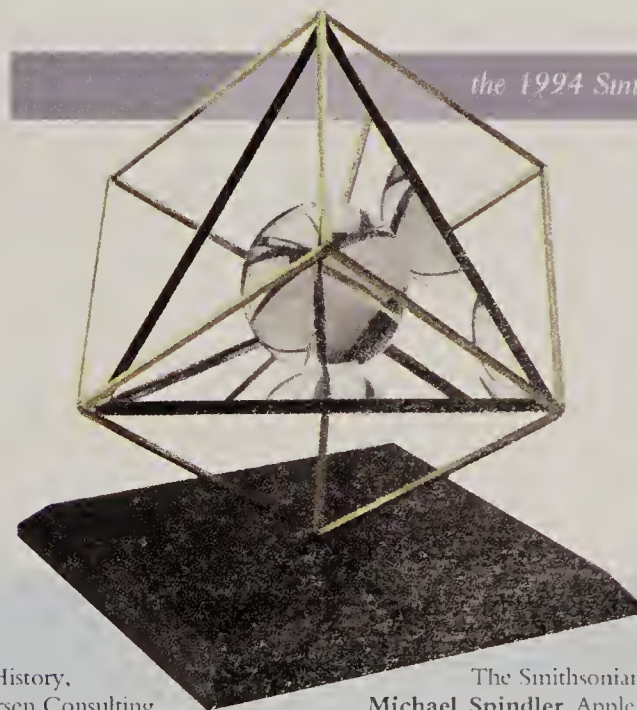
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<sup>1</sup> "The CW Guide to Servers," Computerworld, March 22, 1993 and "The CW Guide to Servers and Superservers," Computerworld, January 31, 1994.

<sup>2</sup> International Data Corporation, "Data General's Ascent in the UNIX Market," October, 1993.

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# In Depth

## REPELLING *the* Wily Hacker

By William R. Cheswick and Steven M. Bellovin

**You can't be too paranoid about security if you're on the Internet. From penetrable protocols to leaky servers, there are lots of ways the bad guys can get you.**

*"It is easy to run a secure computer system. You merely have to disconnect all dial-up connections and permit only direct-wired terminals, put the machine and its terminals in a shielded room and post a guard at the door."*

—F. T. Grampp and R. H. Morris

**F**or better or worse, most computer systems are not run that way today. Security is, in general, a trade-off with convenience, and most companies are not willing to forego the convenience of remote access via networks to their computers. Inevitably, they suffer some loss of security.

The situation is worse for computers hooked up to some sort of network such as the Internet.

What follows is a look at some of the techniques hackers might use to attack systems, especially systems with access to the Internet, and what you can do about these attempted breaches.

From *Firewalls and Internet Security: Repelling the Wily Hacker* by William R. Cheswick and Steven M. Bellovin. Copyright 1994 by AT&T Bell Laboratories, Inc. Reprinted by permission of Addison-Wesley Publishing Co., 1 Jacob Way, Reading, Mass. 01867, (800) 822-6339.

Cheswick and Bellovin are senior researchers at AT&T Bell Laboratories, where they designed and maintain AT&T's Internet gateway.



JANET HAMLIN

## INFORMATION LEAKS

**M**ost protocols give away some information. Often, that is the intent of the person using those services: to gather such information.

Welcome to the world of computer spying. The information itself could be the target of commercial espionage agents or it could be desired as an aid to a break-in. The finger protocol is one obvious example: Apart from its value to a password-guesser, the information could be used for social engineering. ("Hey Robin, the battery on my hand-held authenticator died out here in East Podunk; I had to borrow an account to send this note. Could you send me the keying information for it?" "Sure, no problem. I knew you were traveling. Thanks for posting your schedule.")

Another fruitful source of data is the Domain Name Service (DNS), a special distributed database. A wealth of data can be gathered from it, ranging from organizational details to target lists. But controlling the outflow is hard. Often, the only solution is to limit the externally visible DNS to list gateway machines only.

Sophisticated hackers know this, of course, and don't take you at your word about what machines exist. They do address space and port number scans, looking for hidden hosts and interesting services. The best defense here is a good firewall; if they can't send packets to a machine, it's much less likely to be penetrated.

## SOCIAL ENGINEERING

**T**he social engineering approach usually involves a telephone and some chutzpah, as has happened at AT&T Corp.:

"This is Dennis Ritchie. Someone called me about a problem with the *ls* command. He'd like me to fix it."

"Oh, OK. What should I do?"

"Just change the password on my log-in on your machine; it's been a while since I've used it."

"No problem."

There are other approaches as well, such as mail spoofing. Attackers have been known to send messages like this:

"Bill, we have a visitor coming next week. Could you ask your systems administrator to add a log-in for her? Here's her password line; use the same hashed password."

It is worth noting that this procedure is flawed even if the note were genuine. The visitor should not use the same password on our machine as she does on her home machines. At most, this is a useful way to bootstrap her log-in into existence, but only if you trust her to change her password to something different.

Certain actions simply should not be taken without strong authentication. You have to *know* who is making certain requests. The authentication need not be for-

Social, page 116



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## Social

CONTINUED FROM PAGE 113

mal, of course. One of us recently "signed" a sensitive mail message by citing the topic of discussion at a recent lunch. And in most circumstances, an informal "three-way handshake" — a message and a re-

ply, followed by the actual request — will suffice.

For more serious authentication, cryptographic mail systems are recommended. A word of caution, though: No cryptographic system is more secure than the host system it runs on. If a hacker has booby-trapped the routine that asks for your password, your mail will be neither secure nor authentic.

## WORLD WIDE WEB, WORLDWIDE HEADACHE

**L**ately, the growth of what might be best termed as information protocols has been explosive. These include gopher, Wide Area Information Services and others, sometimes lumped together under the rubric World Wide Web.

While these information protocols differ greatly in detail, there are some essential points of similarity in how they operate.

Generally, a host contacts a server, sends a query or information pointer and receives a response. The response may either be a file to be displayed or a pointer or set of pointers to some other server. The queries, the documents and the pointers are all potential sources of danger.

In some cases, returned document formats include format tags, which implicitly specify the program to be used to process the document. For example, the gopher protocol has a "uencode" format, which includes file name and mode. Blindly believing such information is quite dangerous.

The server is in some danger, too, if it blindly accepts pointers. These pointers often have file names embedded in them.

While the servers do attempt to verify that the requested files are authorized for transfer, the verification process can be (and, in fact, has been) buggy. Failures here can let outsiders retrieve any file on the server's machine.

We would prefer a pointer syntax that included an optional field for a cryptographic checksum of the information. That would make the pointers self-validating, and it would prevent outsiders from concocting them out of whole cloth. But the problem is a difficult one.

Sometimes, the returned pointer is a host address and port and a short log-in dialog. We have heard of instances where the port was actually the mail port and the dialog a short script to send annoying mail messages to someone.

That sort of childish behavior falls into the nuisance category, but it may lead to more serious problems in the future. For instance, if a version of Telnet that uses preauthenticated connections becomes popular, that same stunt could cause someone to log in and execute various commands on behalf of the attacker.

## THE DANGER IN FTP

**B**oth the file transfer protocol (FTP) and the programs that implement it are real problems for Internet gatekeepers.

Anonymous FTP has become a principal standard on the Internet for publishing software, papers, pictures and so on. Most major sites need to have a publicly accessible anonymous FTP repository. But a fair amount of care must be exercised in administering it.

The first and most important rule is that no file or directory in the anonymous FTP area be writable or owned by the FTP log-in, because anonymous FTP runs with that user ID.

Consider the following attack: Write a file named ".rhosts" to FTP's home directory. Then use that file to authorize an *rsh* connection as FTP to the target machine. If the FTP directory is not writable but is owned by FTP, caution is still indicated: Some servers allow the remote client to change file permissions.

The next rule is to avoid leaving a real "passwd" file in an anonymous FTP area. You can give a hacker no greater gift than a real "passwd" file. If your utilities won't choke, delete the file altogether; if you must create one, make it a dummy file, with no real accounts or (especially) hashed

passwords.

Whether or not to create a publicly writable directory for incoming files is quite controversial. While such directories are undoubtedly a convenience, denizens of the Internet demimonde have found ways to abuse them.

You may find that your machine has become a repository for pirated software or digital erotica. This repository may be permanent or transitory; in the latter case, individuals who want anonymity from one another use your machine as an electronic interchange track. One deposits the desired files and informs the other of their location; the second picks them up and deletes them.

Our gateway machines clear the incoming file area nightly.

If feasible, use an FTP server that understands the notions of "inside" and "outside." Files created by an outsider should be tagged so they are not readable by other outsiders.

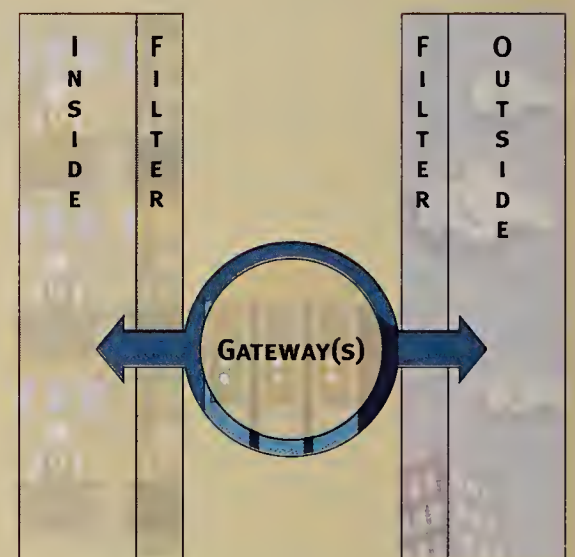
Alternatively, create a directory with search but not read permission, and create oddly named writable directories underneath it. Authorized senders — those who have been informed of the odd names — can deposit files in there for your users to retrieve at their leisure.

## A FIREWALL FOR PROTECTION

A network may be configurable so that only one computer needs to talk to the outside world. Such dedicated computers, often called "firewall gateways" are at the heart of our suggested security strategy.

A firewall, if properly deployed against expected threats, will provide an organization with greatly increased security. Such gateways are necessary; there is a real threat to be dealt with.

A firewall, in general, consists of several different components. The **filters** block transmission of certain classes of traffic. A **gateway** is a machine or a set of machines that provides relay services to compensate for the effects of the filter. The network inhabited by the gateway is often called the **demilitarized zone**.



Source: William R. Cheswick and Steven M. Bellovin

Illustration: Dave Marshall

## X11 SERVERS CAN'T BE TRUSTED

**T**he X11 is the dominant windowing system used on the Internet today. It uses the network for communications between applications and the I/O devices (the screen, the mouse and so on), which allows the applications to reside on different machines. This is the source of much of the power of X11.

It is also the source of great danger.

The fundamental concept of X11 is the somewhat disconcerting notion that the user's terminal is a server. This is quite the reverse of the usual pattern in which the per-user small, dumb machines are the clients that request services via the network from assorted

servers. The server controls all of the interaction devices. Applications make calls to this server when they wish to talk to the user. It does not matter how these applications are invoked; the window system need not have any hand in their creation. If they know the magic tokens — the network address of the server — they can connect.

Applications that have connected to an X11 server can do all sorts of things. They can detect key presses, dump the screen contents and generate synthetic key presses for applications that will permit them and so on. In other words, if an enemy has connected to your key-

board, you can kiss your computer assets good-bye. It is possible for an application to grab sole control of the keyboard when it wants to do things like read a password.

Few users use that feature. And even if they did, there's another mechanism that will let you poll the keyboard up/down status map, and that one can't be locked out.

The problem is now clear. An attacker anywhere on the Internet can probe for X11 servers. If they are unprotected, as is often the case, this connection will succeed, generally without notifying the user.



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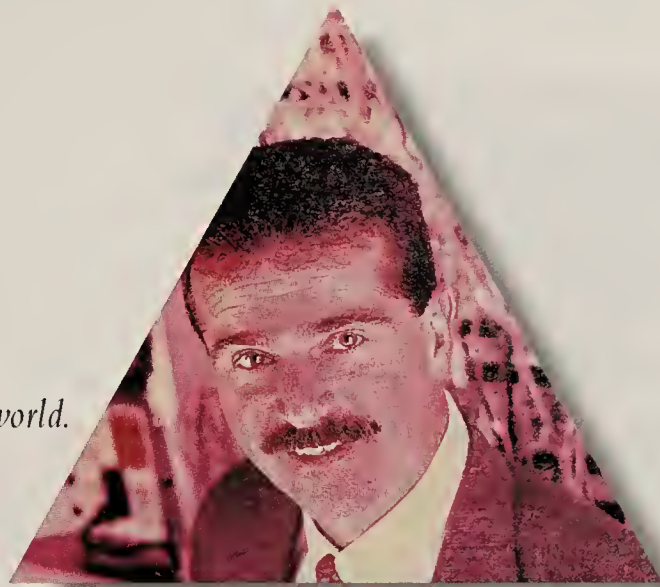


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# LOOKING UP PEOPLE

**T**wo standard protocols, "finger" and "whois," are commonly used to look up information about individuals. The former can be dangerous.

The finger protocol can be used to get information about either an individual

user or the users logged on to a system. It provides personal information, which is useful for password-guessers; it also reveals when the account was last used (seldom- or never-used accounts are much more likely to have

bad passwords), where the user last connected from (and hence, a likely target for an indirect attack) and more.

To be sure, the most important output from finger — the mapping between a human-readable name and an electronic-mail address — is very important. For this reason, many sites are reluctant to disable finger. The point may be moot. If firewalls are used, the gate-

way machine will not have log-ins — and, hence, finger data — for most users. Nor, of course, will there be any point in trying a password-guessing attack against a firewall machine.

A reasonable compromise is to install a custom finger daemon that consults a sanitized database or that simply tells how to send mail to someone within the organization.

## DENIAL OF SERVICE

**S**ome people like to slash car tires or deface walls. Others like to crash other people's computer systems.

Such behavior takes many forms.

The crudest and easiest form is to try to fill up someone's disks by mailing or FTPing them a few hundred megabytes.

It's hard to set an absolute upper bound on resource consumption; apart from the needs of legitimate power users, it's just too easy to send one megabyte a few hundred times instead. Besides, that creates lots of receiving processes on your machine, tying it up further still.

The best you can do is provide sufficient resources to handle just about anything (disk space costs less than a dollar a megabyte these days), in the right spots (for example, separate areas for mail.ftp, and especially precious log data), and make provisions for graceful failure.

A mailer that cannot accept and queue an entire incoming mail job should indicate that to the sender; it should not give an "all clear" response until it knows that the message is safely squirreled away.

Other forms of computer vandalism are more subtle. Some folks delight in sending bogus Internet Control Message Protocol packets to a site, to disrupt its communications.

Sometimes these are "destination unreachable" messages; sometimes they are the more confusing — and more deadly — messages that reset the host's subnet mask. (And why, pray tell, do hosts listen to such messages when they've sent no such inquiry?) Other hackers play games with routing protocols — not to penetrate a machine but to keep it from communicating with its peers.

Aggressive filtering can do a lot to protect you, but there are no absolute guarantees; it can be very hard to tell the difference between genuine messages, ordinary failures and enemy action.



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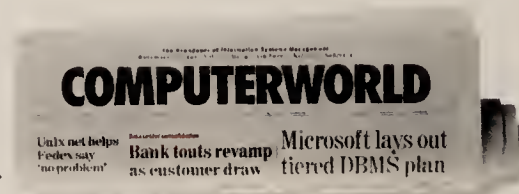


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# Computer Careers

## SQL ASPIRATIONS

**Learning to code efficient SQL?**

**Start by acquainting yourself with the information located in the PLAN TABLE.**

**By  
Doug  
Stacey**

What do all successful DB2 installations have? The latest hardware from IBM? Sophisticated case tools and code generators? The hottest third-party software add-ons? Maybe. A resident SQL expert? Definitely.

While more DB2 installations recognize the value of experts who can help with poor-performing SQL, they'll be hard-pressed to find someone who goes beyond SQL statements that return desired result sets. Once the correct rows are returned, few take the time to determine whether the most efficient method was used.

But what does DB2 need to do to return that result set? Will a correlated subquery be better than a noncorrelated subquery? Will the ORDER BY clause kill response time? Which join technique will return the first row the quickest?

With a little effort, you could be the one with the answers. Becoming a SQL expert isn't that difficult. You're really striving to familiarize yourself with the DB2 optimizer, the decisions it makes

about accessing the data and how it makes them. Once that information is under your belt, it's easier to understand why a given SQL statement performs poorly and what you can do to improve its performance.

### Knowing what's important

Start by getting to know the EXPLAIN statement. It shows what the DB2 optimizer has determined to be the best way to obtain the result set and places the information about the chosen path in a PLAN TABLE. This information is important to learn because it gives clues about how the optimizer operates.

For example, the PLAN TABLE shows the order in which the tables in a statement will be accessed, as well as what join techniques will be used. Just saying FROM TABLEA, TABLEB and TABLEC in your SQL doesn't mean DB2 will access them in that order. Once you know the order, you have the opportunity to influence that decision.

Of course there are tools that attempt to interpret the PLAN TABLE, but first, dig into the DB2 manuals until you can

understand what they're telling you.

Afterward, experiment with your more troubling SQL statements. Joins are especially tricky because both the join order and the join technique can affect a statement's performance. By using SPUFI or QMF (tools that execute dynamic SQL), quick changes can be made to the statement and the effect, and they can be judged immediately by checking the EXPLAIN results.

Initially, it's trial and error, but eventually you'll know what to try first. When confident that you've chosen a reasonable access path, execute the statement dynamically. Often you must use a monitoring tool to determine which version of a query is best, but queries with the few-

est GETPAGES and lowest number of I/Os are generally preferred.

Eventually, you'll know that even though a correlated subquery is executed repeatedly for each row in the result set, it can outperform a noncorrelated query if the inner result set is large.

The ORDER BY clause is also relatively harmless if supported properly by an index, and a nested loop join will get the rows back to your application the quickest.

Stacey is a director at Comdisco, Inc. in Rosemont, Ill. He serves on the International DB2 User Group (IDUG) North American Conference Planning Committee and as a chairman of the IDUG Special Publication Committee.

## Required reading

Information provided in the DB2 manuals on the EXPLAIN clause is so important that it's repeated twice: Chapter 5.2 in the DB2 Application Programming and SQL Guide on Improving Query Performance and Chapter 7.2 in the Administration Guide Volume III on Using EXPLAIN to Improve Query Performance.

Starting with how to create and populate the PLAN TABLE, the chapters define each column in the table and discuss the significance of the values there. They define the different access paths that the optimizer may choose and show how to identify these

from the PLAN TABLE information.

You can use this chapter to learn DB2 sorting, prefetch and indexing. For example, how many sorts DB2 needs to satisfy your query, timing in building the result and the purpose of the sort are all in the PLAN TABLE.

Sort activity always affects query performance, as do the predicates in the WHERE clause that are indexable. Once DB2 hits one predicate that can't be indexed, those that come after it cannot be used in a matching index scan either. Just like the sort and prefetch, the PLAN TABLE shows exactly what index was chosen and which columns are indexable.

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# Atlanta

By Kate Colborn

Steady economic growth since 1992, 85,300 new jobs in 1993 and an anticipated \$5.1 billion Olympic impact on the local economy in 1996 are statistics supporting economists' opinions that Atlanta's economy is faring well.

Apart from consulting houses, where hiring is especially strong, one fast-growing company is the Home Depot chain. Based in Atlanta, Home Depot has had an average of 35 information systems openings a month for the last 3½ years, says technical recruiter Dana Milner. In addition to specific mainframe knowledge, IS applicants must score high on an intelligence test and demonstrate excellent interpersonal skills.

"About four years ago, the Home Depot management decided to create the best IS shop in Atlanta," Milner says. "The company is moving rapidly and changing constantly, and we see IS as the fuel for the rocketship."

Another Atlanta employer with ongoing needs is Worldspan Travel Agency Information Services, which recently acquired a new reservation system and is filling both new positions and vacancies, says Mike DiBernardo, vice president of planning and technology development. He has a constant and hard

A central location and a large number of regional and national company headquarters continue to make Atlanta a good prospect in the IS market

## Resume swap

The Southeastern

Employment Network is

a group of recruiters

from roughly 80 major

Atlanta-based

companies that meet to

discuss hiring needs.

The network is not a

placement service, but

resumes are made

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at monthly meetings.

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P.O. Box 2404, Lilburn,

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to meet need for programmers experienced in IBM's mainframe transaction processing facility.

Atlanta is also home to one of the four primary data processing sites of NationsBank, which hired actively in 1993 and expects steady IS staff growth in 1994. "Our needs in Atlanta are very specific," says Charlotte Pedersen, project manager for high-tech recruiting. These needs range from electronic data interchange to midrange experience.

Internal changes at Atlanta-based Cox Cable Communications and Turner Broadcasting may also spark hiring. Cox is moving some IBM AS/400 systems to Unix and sees a need to bring back some of the IS functions it decentralized several years ago, says Roy Prater,

vice president of IS.

Likewise, Turner is re-engineering its systems and looking for Unix specialists, according to Tom Bonnell, manager of Turner's computer group.

Companies in cities just outside Atlanta are also prospering. Telecorp Systems in Roswell, Ga., is one example.

"We're hiring across the company and increasing our [research and development] staff by 50%," says David Connor, vice president of research and development. Currently, Connor is looking for software developers who combine C and C++ experience under Unix with exposure to telephony and host communications environments.

According to recruiters, IS hiring is expected to be steady for the next few years, with re-engineering driving some of the activity. ■

Colborn is a free-lance writer in Center Harbor, N.H., who writes about technical careers.

## RECRUITERS' VIEW

Spring hiring is double the 1993 rate at Robert Half International, Inc., although it is still well behind pre-1987 levels, says Ron Wills, data processing placement manager.

Driving a significant portion of this activity is the conversion from legacy systems, says Tom Freeh, managing director at Source EDP's Atlanta office. But because of the number of headquarters and regional operations, there is still a modest demand for mainframe specialists.

Hot specialties include object-oriented programming, client/server development and specific packages such as Powersoft Corp.'s PowerBuilder and Microsoft Corp.'s Visual Basic. Oracle Corp. is the "flavor of the week" in relational database management systems, says Adam Lawrence, staffing specialist at CPI, with Sybase, Inc. products a close second.

## Atlanta



### Unemployment: February 1994

5.9%: Metro area

6.5%: National average (seasonally adjusted)

Source: Georgia Department of Labor

### Largest employers:

(by number of employees in Atlanta)

Delta Air Lines

AT&T Corp.

BellSouth Corp.

Lockheed Aeronautical Systems

Rich's

The Southern Co.

IBM

NationsBank

Marriott Corp.

The Coca-Cola Co.

Source: 1993 Book of Lists, Atlanta Business Chronicle

### Olympics:

The city is busy preparing for its role as host of the 1996 summer Olympics, which is expected to have a \$5.1 billion impact on the local economy. It will also account for the following:

- 15,000 athletes and 15,000 members of the media in Atlanta
- 2,000 hours of television
- 500,000 hotel nights booked
- 3 billion TV viewers
- 10,000 tons of trash

Source: Atlanta Chamber of Commerce

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# Computer Careers

## Atlanta Regional Scope

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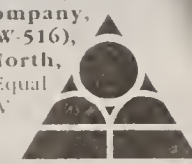
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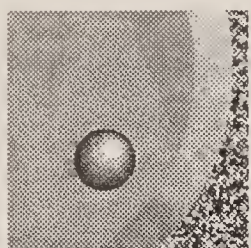
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# Computer Careers

## Atlanta Regional Scope

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# Computer Careers

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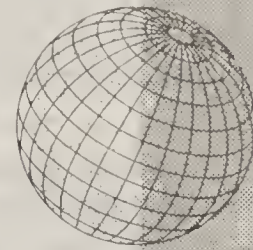
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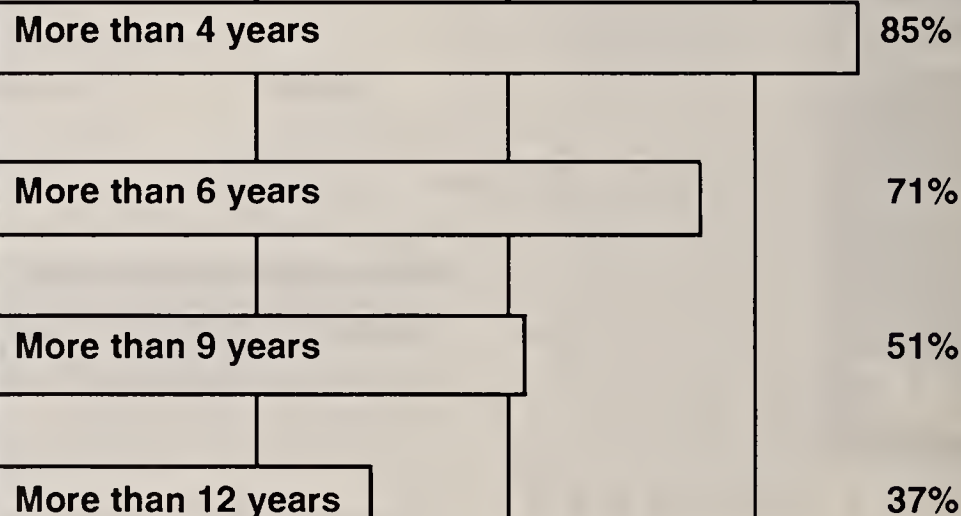
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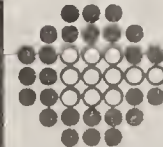


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# Goodbye Minis

**KEEPING  
up**

By Alan Radding

Anyone pursuing a career in minicomputers should develop alternative skills. Although some vendors still seem promising for the short term, the traditional minicomputer as we know it represents a dead end.

Traditional minis — those large, proprietary systems — “are on their way out. The time for denial is past,” says Richard Buchanan, senior analyst of the computing strategy service at Forrester Research, Inc. in Cambridge, Mass.

Vendors themselves are giving up on the minicomputer (see related story), but user companies have been slower to jump ship because their systems still serve their business needs.

“Sixty percent of the installed AS/400 base is sticking with it for now,” Buchanan concedes, but the future belongs to open client/server computing, not proprietary host-based systems. In fact, IBM’s latest announcements concerning re-engineering the AS/400 focus squarely on advanced client/server computing and openness.

In the short term, the AS/400

## In demand

**If there is going to be any career path in minicomputers, it will be with the AS/400. Dick Grenham, an independent AS/400 consultant in Framingham, Mass., is seeing demand for coding and performance tuning. Recently, he has fielded requests for help with AS/400 communications. “A lot of companies are trying to get started with communications for their AS/400. They are trying to connect it with LANs or to multiple AS/400s.”**

continues to thrive and, unlike other minicomputers, has a strong demand for experienced people. “All you see are ads for AS/400 programmers,” says Paul Dravillas, associate professor at Moraine Valley Community College in Palos Hill, Ill.

In response to that demand, Dravillas helped organize and now teaches a for-credit AS/400 certificate program that attracts several hundred students a year. Eighty-five percent of its graduates get jobs working with the AS/400.

Bunker Hill Community College in Boston provides courses in AS/400 basics, RPG, advanced RPG and the AS/400 database.

“There aren’t enough programmers and programmer/analysts around for the AS/400,” notes Dick Grenham, an AS/400 consultant and part-time instructor at Bunker Hill. “I know three or four companies that are looking for people right now.”

An independent consultant in Framingham, Mass., Grenham, a former IBM employee, says he’s in high demand for his services, mainly coding and performance-tuning the AS/400. In response to a new interest in AS/400 communications, he organized Bunker

Hill’s seminar on TCP/IP for the AS/400.

For people with basic computer skills, learning the AS/400 isn’t difficult. The machine supports RPG/400, Cobol and CL as its programming languages. RPG/400, which is very similar to the RPG used on the System/38, is the primary programming language. “You don’t have to be a rocket scientist to program an AS/400 using RPG,” Dravillas adds.

AS/400 programmers who want to enjoy a long and healthy career with the platform and to be prepared for whatever comes after-

ward should enhance their basic AS/400 RPG skills with SQL database experience, knowledge of fourth-generation languages, TCP/IP communications and even object-oriented programming, Buchanan advises.

This same advice applies even more to other minicomputer professionals: Acquire the open systems, client/server skill set as quickly as possible.

By itself, a traditional minicomputer career has no future. ■

Radding is a free-lance writer in Newton, Mass.

## Going, going, gone

Whether they admit it or not, the major minicomputer vendors have abandoned their minicomputers or are in the process of doing so.

**Data General Corp.:** DG made the commitment to Unix several years ago with its Avion line, which has enjoyed modest success. Its MV minicomputer lines make up 14% of its revenue, down from 29% a year ago.

**Digital Equipment Corp.:** Despite efforts to reposition the VAX/VMS line, Digital’s future lies with Alpha/Unix. VAX/VMS

professionals would be wise to follow Digital’s lead and add Unix/RISC, client/server computing to their skills.

**Hewlett-Packard Co.:** The company still markets its MPE-based minicomputers, but its main efforts revolve around its Unix-based, multiprocessor RISC servers.

**IBM:** The AS/400 remains the last thriving minicomputer platform, and the core of its installed base will be slow to move away. However, IBM is evolving the AS/400 into a high-powered RISC machine with a focus on advanced client/server capabilities and openness.

**Wang Laboratories, Inc.:** The resurrected Wang is not focusing on minicomputers but imaging, document management, data access and other hot software categories.

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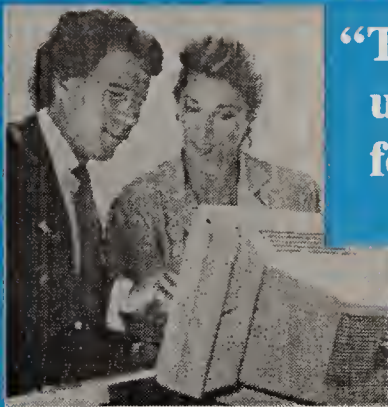
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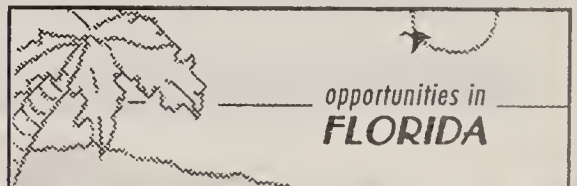
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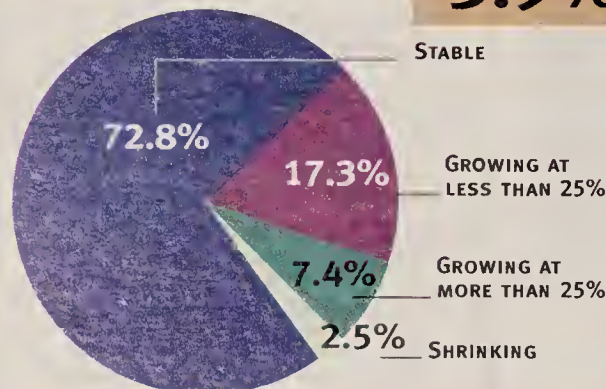
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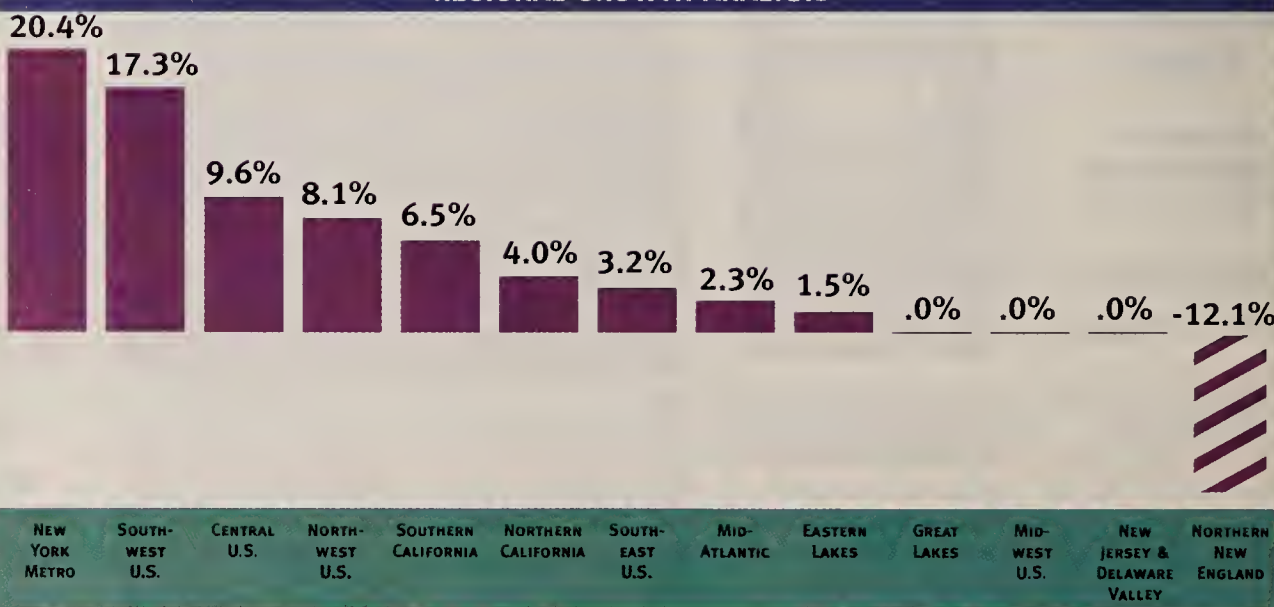
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## IS THERE HELP FOR ON-LINE HELP?

By Bronwyn Fryer

Whether you call them wizards, coaches or tutors, the newest on-line Help functions built into the most popular productivity software packages are, by just about anyone's standards, a vast improvement over the stiff, badly written and poorly integrated Help functions of the past.

Mainstream spreadsheet and word processing applications such as Microsoft Corp.'s Word for Windows 6.0 perform tasks automatically, such as formatting a letter. Others, such as WordPerfect Corp.'s WordPerfect 6.0 for DOS, incorporate step-by-step teachers that walk users through complex pro-

cesses. But despite these improvements, Help functions still have a long way to go.

On-line coaches are rapidly becoming a necessity among competing off-the-shelf applications, in part because most users prefer them to poring through manuals. "On a scale of one to 10, good on-line Help is absolutely a 10 in importance," says Chris LeTocq, director of software research at Computer Intelligence/InfoCorp in Santa Clara, Calif.

Part of the reason why coaches have been greeted with comparative enthusiasm is because past incarnations of on-line documentation have been nothing short of dreadful. A March 1994 Dataquest Worldwide Services Group study revealed that users find help in on-line or manual documentation only 50% of the time.

And although users rated index functions 2.5% more important than any other aspect of on-line or manual documentation, "indexes are poorly done since publishers tend to slap them together right before shipping the product," notes



Bob Johnson, a senior industry analyst at Dataquest.

Johnson adds that the vast majority of on-line Help that he has seen is definition-oriented and cannot help users. "Instead of telling you how to use a feature, such as a database join, they tell you what the feature does. That doesn't help people who are trying to be self-supporting," he says.

While wizards, coaches and other built-in tutorials certainly improve matters, on-line Help functions still do comparatively little to ease the burden placed on corporate help desks or individual users. "So-called 'wizards' are good because they will give you examples of how tasks are done, but they are still irrelevant to most real-world work,"

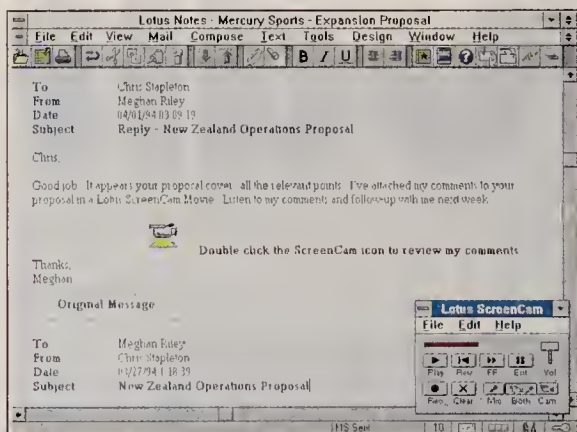
Johnson says.

On-line Help will only be useful, he notes, when vendors fit examples to the user's context, rather than assume a given knowledge or skill level.

Corporate help desks can fill their own users' needs for more relevant Help functions in in-house applications with products such as Lotus Development Corp.'s ScreenCam.

ScreenCam is a screen-recording utility that lets users record tasks in the context of their office environment, then attach the recording as an object in electronic mail or other applications and share "how-to" processes with others.

Still, beyond using the standard Help engine in the Windows Help system, there are no standards for developing



### SCREEN-RECORDING UTILITIES

such as Lotus' ScreenCam are making it easier for corporate help desks to provide Help functions that are relevant to the company's business

## REAL HELP FOR REAL PEOPLE

Until vendors get their acts together, it's up to information systems managers to select off-the-shelf packages that provide decent on-line Help. When choosing a package, look for the following:

- **Error messages with Help buttons.** At the very minimum, there should be a reference for every command, never an error message without a Help button. The Help system should also attempt to provide workarounds rather than just definitions that leave users hanging.
- **Business examples.** Look for packages that use plenty of good business-oriented examples written in plain, nontechnical language. Definitions should also be thoroughly cross-referenced.
- **Detailed indexes.** See how long and detailed the index is and whether it is written with an eye for making users more self-supporting.

better, more relevant Help systems, analysts say. Therefore, it is incumbent upon vendors to develop more creative, intelligent ways of presenting documentation on-screen.

Until vendors of off-the-shelf packages provide better on-line support, the storm clouds will continue to gather, Johnson predicts. Companies, increasingly sensitive to paying for costly help desks or outsourced support, are also getting angrier about the poor state of Help functions.

"The issue facing vendors is no longer how long they leave users on hold," Johnson argues. "It's rapidly focusing on whether they force their users to call in the first place."

Fryer is a free-lance writer in Menlo Park, Calif.

## WHERE IS IT?

Users find help in on-line or manual documentation only half of the time. In fact...

42%

spend five to 10 minutes struggling with a feature, searching through manuals or getting lost in on-line Help menus before calling for assistance.

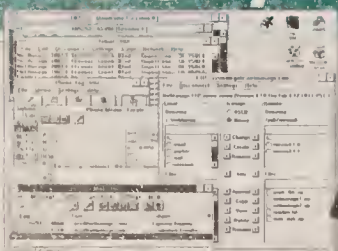
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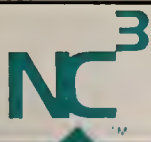
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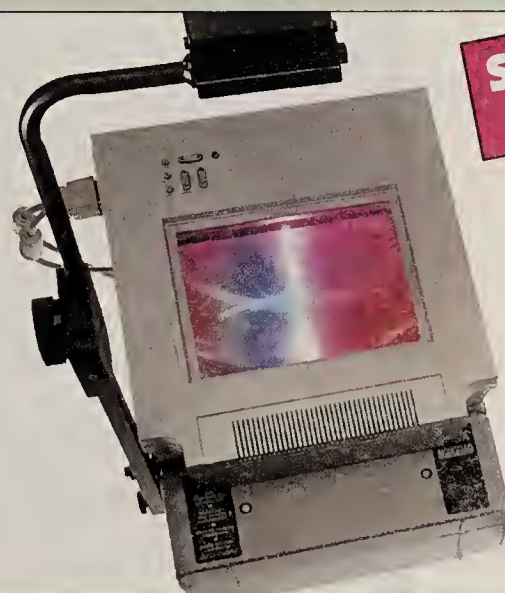
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## G

Gannett Co.	16,101
Gartner Group, Inc.	1,24,30,47
General Dynamics Corp.	89,92
General Mills, Inc.	107
Glaxo, Inc.	7
Gradient Corp.	14
Gupta Corp.	86,87,142

## H

Halliburton Corp.	56
Harte-Hanks Data Technologies	79
Hewlett-Packard Co.	10,30,43,46,49,55
	56,61,64,74,82,85
Hitachi Data Systems Corp.	24
Hitachi Metals, Ltd.	34
Hoechst Celanese Corp.	63
The Home Depot, Inc.	122
Household Financial Network	74
Human Designed Systems	61
Humana, Inc.	79
Hurwitz Consulting Group, Inc.	16

## I

IBM	1,4,10,16,24,30,43,55,56,61,70
	74,79,80,82,83,85,86,87,102,107,142
IBM PC Co.	6
Illuminata	43
Infonet Services Corp.	1
Information Advantage, Inc.	80
Information Balance, Inc.	30
Information Management Associates	101
Information Presentation	
Technologies, Inc.	61
Inova Health System	1
Integrated Systems Solution Corp.	107
Intel Corp.	6,8,43,48,56,61,79
International Data Corp.	1,30,46,55

## J

James Capel, Inc.	47
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JYACC, Inc.	87
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## K

Kaleida Labs, Inc.	4
Kendall Square Research Corp.	34
Keyfile Corp.	61
Kmart Corp.	107
KnowledgeWare, Inc.	86
Kommunedata	7
Kurzweil Applied Intelligence, Inc.	49

## L

Lannet, Inc.	64
Legent Corp.	55
Levi Strauss & Co.	106
Lotus Development Corp.	4,15,55
	102,134,142
Lutheran Medical Center	97

## M

Mallinckrodt Medical, Inc.	6
Marcam Corp.	83
McCaw Cellular Communications, Inc.	71
McData Corp.	83
MCI Communications Corp.	66
Media Vision Technology, Inc.	34
Merrill Lynch & Co.	10
Meta Group, Inc.	7,43,48,64,70
MetaWare, Inc.	87
Micro Focus, Inc.	30
Microbank Software, Inc.	102
MicroNet Technology, Inc.	50
Microsoft Corp.	1,8,14,34,43,46,48,49
	55,61,63,82,85,86,87,134,142
Monsanto Co.	10
Mosaic Communications Corp.	10
Motorola Corp.	34
Motorola, Inc.	4,8,46,79
Multex Systems, Inc.	85
Multi Soft, Inc.	80

## N

National Association of Broadcasters	55
National Data Corp.	66
National Grocers Co.	63
NationsBank	122
NCR Corp.	85
NetFrame Systems	30
Network, Inc.	55
New York Life Insurance Co.	48
Nolan, Norton & Co.	79
North American Trade Point	1
North American Van Lines, Inc.	102
Northwest Natural Gas Co.	56
Novell, Inc.	1,14,30,34,55,56
	63,83,86,102,142

## O

Object Design, Inc.	16
Object Management Group	14,85
Object Technology International, Inc.	16
ObjectPlus Corp.	34
Open Software Foundation	85
Oracle Corp.	7,85,87,142

## P

Patricia Seybold Group	4,85
Performance Computing, Inc.	55
PictureTel Corp.	49
Pixel Semiconductor	48
Platinum Software Corp.	50
Powersoft Corp.	30
Proteon, Inc.	16

## Q

Quaker Oats Co.	107
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## R

Redgate Communications Corp.	34
RJR Nabisco, Inc.	107
Rohn Systems	97
Ross Systems, Inc.	1,83
Roundy's, Inc.	107

## S

SAP America, Inc.	1
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Sapiens International Corp. N.V.	10
SAS Institute, Inc.	79
Scientific-Atlanta, Inc.	4
Service Merchandise Co.	20,79
Silicon Graphics, Inc.	10,56
Silvon Software, Inc.	80
Software Engineering of America	82
Software Spectrum	1
Software-Centric	87
Soletek Corp.	61
Spartan Stores, Inc.	100
Spinnaker Software	34
Sports Illustrated	8
SQL Financials, Inc.	1
St. Paul Software	66
Standardware, Inc.	80
Storage Technology Corp.	24,83
Storage Technology, Inc.	79
Sun Microsystems, Inc.	56,74,79,85
SunGard Recovery Services, Inc.	83
SunSoft, Inc.	85
SuperMac Technology, Inc.	48
Supervalu, Inc.	107
Sybase, Inc.	7,55,56,85,87
Synercom Technology, Inc.	83
SynOptics Communications, Inc.	64,141
Syquest Technology, Inc.	50

## T

Tandem Computer, Inc.	66,102
TechSystems	20
Telecorp Systems	122
Texaco, Inc.	14
Texas Instruments, Inc.	60
The Dun & Bradstreet Corp.	101
The Limited, Inc.	1
The Sport Authority	79
The Yankee Group	16,60
Toshiba America	
Information Systems, Inc.	48
Toshiba Corp.	8
Towers Perrin	108
Toys R Us, Inc.	79
TranSwitch Corp.	70
Travelers Insurance Co.	71
Traveling Software, Inc.	46
Trident Systems	106
TSL International Ltd.	63
Turner Broadcasting	122

## U

U.S. Air Force	96
U.S. Department of Commerce	1
U.S. Department of Defense	12
U.S. Department of Justice	34
U.S. Department of Veterans Affairs	12
UBS Securities	1
UniPress Software, Inc.	61
Unisys Corp.	10,83
U.S. Automobile Association	106
United Technologies Corp.	1
Unix System Laboratories, Inc.	142
US West	30
USLife Corp.	97

## V

VLSI Technologies, Inc.	48
Voest-Alpine Services Technology	55

## W

Wal-Mart Stores, Inc.	100,107
Washington Publishing Co.	66
Weitek Corp.	48
Wellfleet Communications, Inc.	64,70
Whirlpool Corp.	96
WordPerfect Corp.	34,49,55,85,134

## X

X/Open Co.	85,142
Xerox Corp.	6
XL/Datacomp, Inc.	83



# Friday Stock Ticker

## Gainers Losers

### Percent

MICRO FOCUS	29.0	PROGRESS SOFTWARE CORP.	-25.6
DATA SWITCH CORP.	18.8	CISCO SYSTEMS INC.	-24.1
COMSHARE INC.	13.6	CENTIGRAM COMMUNICATIONS	-22.5
IPL SYSTEMS INC.	13.5	SYSTEM SOFTWARE ASSOC.	-20.6
MICROCOM INC.	11.9	DATA RACE INC. (L)	-18.5
AMERICAN MGMT. SYSTEMS (H)	11.0	KOMAG INC.	-18.5
GENERAL DATACOMM INDS.	9.4	AST RESEARCH INC.	-17.8
BROCK CONTROL SYSTEMS INC.	8.8	CONVEX COMPUTER	-17.8

### Dollar

MICROSOFT CORP.	5.50	PROGRESS SOFTWARE CORP.	-12.75
MICRO FOCUS	3.63	WELLFLEET COMMUNICATIONS	-10.25
HEWLETT PACKARD CO.	2.75	CABLETRON SYSTEMS	-8.00
PARAMETRIC TECHNOLOGY	2.50	CISCO SYSTEMS INC.	-7.38
AMERICAN MGMT. SYSTEMS (H)	2.25	CHIPCOM CORP.	-7.00
BROCK CONTROL SYSTEMS INC.	1.75	CENTIGRAM COMMUNICATIONS	-5.75
BGS SYSTEMS INC.	1.75	NEWBRIDGE NETWORKS CORP.	-5.13
COMPUTER SCIENCES (H)	1.63	POWERSOFT	-4.75

## Industry Almanac

## Hubs: Slip-sliding away

The past two months have not been kind to hub vendors, which not so long ago ran with the jet set on Wall Street.

Chipcom Corp. (CHPM) was last week's victim, falling more than three notches on Wednesday alone. However, the Southboro, Mass., internetworking company's stock had already retreated significantly from its highest mark after a healthy run-up in 1993. Chipcom's choppy flight reflected recent turbulence suffered by hub makers including market leaders SynOptics Communications, Inc. (SNPX) and Cabletron Systems, Inc. (CS).

Analysts attributed the slowdown in hub stocks to the decline of the stock market at large; only a few companies, most notably SynOptics, have suffered revenue shortfalls.

"You're looking at a stock market phenomenon, not a hub market phenomenon," said Eric Buck, vice president at Donaldson, Lufkin & Jenrette Securities Corp.

"Chipcom had been commanding a premium even relative to the other hub vendors, and a correction is always hardest on the companies trading at high multiples," said James Wade, an analyst at Alex. Brown & Sons, Inc. He did note, however, that Chipcom reportedly lost out on a couple of big sales deals recently.

In spite of the recent beatings, analysts said they are at least modestly bullish on hub stocks. "The opportunities are still out there. Of all the LAN segments, hub vendors are in the best position," Buck said.

Wade said there are two ways to look for profits in hub stocks at the moment. "You can bet on a SynOptics rebound — they're trading at a low multiple of 1995 earnings — but we're a little skeptical of what the 1995 calendar earnings will be. Or you can pay a little extra for Cabletron, which is very consistent in meeting their numbers," Wade said.

—Derek Slater

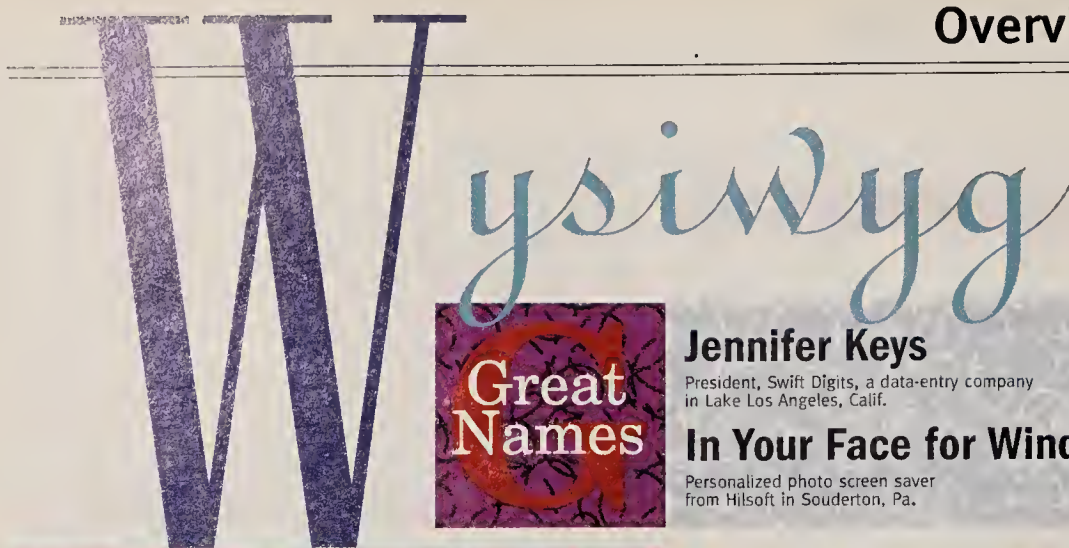
### Your slip is showing

The lightning growth of the hub market has not kept hub vendors from sliding off their 52-week highs

COMPANY	52-WEEK HIGH	PRICE 5/11
Asante	14	7
Cabletron	132.50	98
Chipcom	60.25	39.50
Lanet	18.25	8.25
LanOptics	22.25	7.88
NetWorth	17	11.25
Optical Data Systems	18.25	16.68
SynOptics	42.75	18.50

EXCH	52-WEEK RANGE		MAY 13 Wk Net Wk Pct			EXCH	52-WEEK RANGE		MAY 13 Wk Net Wk Pct				
			3PM	CHANGE	CHANGE				3PM	CHANGE	CHANGE		
Communications and Network Services						OFF 3.26%							
OTC	63.75	19.63	3 COM CORP.	55.25	-3.00	5.2	OTC	18.75	8.50	KNOWLEDGEWARE INC.	10.25	-0.38	3.5
NYS	45.56	35.50	AMERITECH CORP.	38.25	0.25	0.7	OTC	37.00	15.50	LEGNT CORP.	28.00	1.13	3.9
NYS	65.00	49.50	AT&T	53.00	1.25	2.4	OTC	86.50	30.25	LOTUS DEVELOPMENT	59.75	-2.50	4.0
OTC	26.50	12.50	BANYAN SYSTEMS INC.	15.13	-2.13	12.3	OTC	18.50	11.50	MAGIC SOFTWARE ENTERPRISES	11.50	1.13	-8.9
NYS	69.13	49.00	BELL ATLANTIC CORP.	51.00	0.50	1.0	OTC	10.50	6.25	MANUGISTICS GROUP INC.	6.75	0.00	0.0
NYS	63.88	50.63	BELLSOUTH CORP.	57.75	-0.75	-1.3	OTC	11.25	4.50	MATHSOFT (L)	3.88	0.13	3.3
NYS	21.50	4.38	BOLT, BERANEK & NEWMAN	10.88	-1.50	-12.1	OTC	17.25	8.38	McAfee ASSOCIATES	8.50	0.25	3.0
OTC	15.75	9.50	BROOKTROUT TECHNOLOGY	12.50	-0.50	-3.8	OTC	36.00	11.50	MENTOR GRAPHICS	11.25	0.38	-3.2
NYS	132.50	87.50	CABLETRON SYSTEMS	92.25	-8.00	-8.0	OTC	11.63	4.88	MICRO FOCUS	16.13	3.63	29.0
OTC	43.00	16.75	CENTIGRAM COMMUNICATIONS	19.75	-5.75	-22.5	OTC	98.00	70.38	MICROGRAFX INC.	5.25	-1.13	17.6
OTC	60.25	34.75	CHIPCOM CORP.	39.25	-7.00	-15.1	OTC	37.75	19.50	MICROSOFT CORP.	96.63	5.50	6.0
OTC	40.75	20.13	CISCO SYSTEMS INC.	23.25	-7.38	-24.1	OTC	44.75	23.75	ORACLE CORP.	31.00	1.25	4.2
OTC	18.38	9.25	COMPRESSION LABS INC.	13.13	0.88	7.1	OTC	24.50	16.50	PARAMETRIC TECHNOLOGY	31.75	2.50	8.5
OTC	12.38	5.00	COMPUTER NETWORK TECH.	7.75	-0.31	-3.9	OTC	41.38	26.00	PARCPLACE SYSTEMS INC. (L)	16.50	3.00	-15.4
OTC	36.00	8.50	CROSSCOMM	10.63	0.13	1.2	OTC	6.25	3.50	PEOPLESOFT	27.63	-0.38	-1.3
OTC	3.56	1.50	DATA SWITCH CORP.	2.38	0.38	18.8	OTC	69.50	22.00	PHOENIX TECHNOLOGIES	5.13	-0.13	-2.4
OTC	73.13	36.75	DSC COMMUNICATIONS	58.13	-1.50	-2.5	OTC	39.75	3.50	POWERSOFT	44.50	-4.75	9.6
OTC	3.50	0.81	GANDALF TECHNOLOGIES INC.	1.00	0.02	1.6	OTC	16.75	7.25	PLATINUM SOFTWARE	5.63	-1.00	-15.1
NYS	17.63	8.00	GENERAL DATACOMM INDS.	13.13	1.13	9.4	OTC	60.25	32.25	PLATINUM TECHNOLOGY	13.19	-0.06	-0.5
NYS	39.88	29.50	GTE CORP.	31.88	0.88	2.8	OTC	3.81	1.94	PROGRESS SOFTWARE CORP.	37.00	12.75	-25.6
NYS	95.97	73.88	ITT CORP.	82.25	-4.63	-5.3	OTC	32.00	13.75	QUARTERDECK OFFICE SYS.	2.75	-0.06	-2.2
OTC	29.88	21.38	MCI COMMUNICATIONS CORP.	22.50	-0.25	-1.1	OTC	11.38	4.00	RAINBOW TECHNOLOGIES INC. (L)	13.75	-0.75	-5.2
OTC	7.75	1.50	MICROCOM INC.	5.88	0.63	11.9	OTC	14.50	3.75	RASTEROPS	5.00	-0.88	14.9
OTC	47.00	23.00	NETMANAGE INC.	36.00	0.00	0.0	OTC	28.75	4.00	ROSS SYSTEMS	5.25	0.00	0.0
OTC	7.25	3.50	NETRIX CORP.	6.00	-0.25	-4.0	OTC	14.00	9.75	SAPIENS INTL. CORP. N.V. (L)	4.63	-0.25	-5.1
OTC	11.75	4.75	NETWORK COMPUTING DEVICES	5.75	-1.00	-14.8	OTC	17.25	7.75	SOFTKEY INTERNATIONAL INC.	11.38	-0.50	-4.2
NYS	11.13	6.63	NETWORK EQUIPMENT TECH.	7.75	0.00	0.0	OTC	8.63	4.50	SOFTWARE PUBLISHING CORP.	4.50	-0.38	-7.7
OTC	23.38	8.88	NETWORK GENERAL	16.75	-0.75	-4.3	OTC	17.25	7.75	SOFTWARE TOOLWORKS INC.	14.50	-0.13	-0.9
OTC	10.13	6.38	NETWORK SYSTEMS CORP.	6.44	-0.19	-2.8	OTC	13.75	6.25	STATE OF THE ART	7.75	0.25	3.3
OTC	73.88	32.38	NEWBRIDGE NETWORKS CORP.	46.13	-5.13	-10.0	NYS	35.63	17.63	STERLING SOFTWARE INC.	30.63	-0.63	-2.0
NYS	38.63	21.38	NORTHERN TELECOM LTD.	30.13	0.25	0.8	OTC	21.63	9.88	STRUCT. DYNAMICS RESEARCH	9.88	-1.06	-9.7
OTC	33.50	15.38	NOVELL INC.	17.88	-0.63	-3.4	OTC	54.00	25.75	SYBASE INC.	50.50	-1.38	-2.7
NYS	48.88	33.25	NYNEX CORP.	36.13	-0.75	-2.0	OTC	20.50	10.88	SYMANTEC CORP.	13.00	-2.25	-14.8
OTC	30.00	19.00	OCTEL COMMUNICATIONS CORP.	19.25	-1.00	-4.9	OTC	52.75	33.75	SYNOPSYS	36.75	-0.75	-2.0
OTC	18.25	9.00	OPTICAL DATA SYSTEMS INC.	16.25	0.13	0.8	OTC	24.25	12.00	SYSTEM SOFTWARE ASSOC.	12.50	-3.25	-20.6
OTC	7.50	3.75	PENRIL DATA COMM NETWORKS	5.63	0.13	2.3	OTC	6.75	2.88	TRINZIC CORP.	3.94	-0.31	-7.3
OTC	27.25	10.00	PICTURETEL CORP.	12.75	-0.63	-4.7	OTC	30.00	15.25	VIEWLOGIC SYSTEMS	21.00	-1.75	-7.7
OTC	8.25	3.63	PROTEON INC.	5.75	0.13	2.2	OTC	13.25	5.50	WALKER INTERACTIVE SYSTEMS	7.25	-0.75	-9.4
OTC	14.38	7.00	RACOTEK INC.	8.13	0.13	1.6	OTC	60.00	17.25	WALL DATA INC.	32.63	-2.63	-7.4
NYS	38.88	24.88	SCIENTIFIC ATLANTA INC.	33.63	0.13	0.4	Semiconductors						
NYS	47.00	36.75	SOUTHWESTERN BELL CORP.	39.25	-0.50	-1.3	OFF 3.88%						
NYS	40.25	29.63	SPRINT CORP.	36.88	0.00	0.0	NYS	32.75	16.75	ADVANCED MICRO DEVICES	23.63	-0.75	-3.1
OTC	26.75	13.75	STANDARD MICROSYSTEMS CORP.	16.25	-1.25	-7.1	NYS	31.13	18.00	ANALOG DEVICES INC.	26.50	-0.63	-2.3
OTC	23.75	10.75	STRATACOM INC.	22.63	0.00	0.0	OTC	26.88	10.88	ATMEL CORP.	24.88	0.75	3.1
OTC	42.75	18.50	SYNOPTICS COMMUNICATIONS	18.75	-1.50	-7.4	OTC	7.50	3.25	CHIPS AND TECHNOLOGIES	4.63	-0.25	-5.1
OTC	15.25	2.88	TELEBIT CORP.	8.50	-1.63	-16.0	OTC	44.63	15.75	CIRRUS LOGIC	33.25	-2.50	-7.0
OTC	46.00	20.25	US ROBOTICS	30.50	-1.56	-4.9	NYS	19.88	11.25	CYPRESS SEMICONDUCTOR CORP.	14.88	-1.50	-9.2
NYS	50.75	38.50	U.S. WEST INC.	39.00	-0.63	-1.6	NYS	20.00	13.00	DALLAS SEMICONDUCTOR	17.38	-1.13	-6.1
OTC	87.75	38.75	WELLFLEET COMMUNICATIONS	65.25	-10.25	-13.6	OTC	27.75	19.75	INTEGRATED SILICON SYSTEMS	25.50	-0.50	-1.9
OTC	28.25	10.25	XIRCOM	17.75	-2.25	-11.3	OTC	74.50	48.75	INTEL CORP.	58.50	-0.50	-0.8
OTC	30.00	13.75	XYPLEX INC.	16.00	0.00	0.0	NYS	23.38	11.75	LSI LOGIC CORP.	20.13	-1.50	-6.9
PCs and Workstations						OFF 5.51%							
OTC	7.50	2.63	ADVANCED LOGIC RESEARCH	5.06	-0.19	-3.6	OTC	26.75	12.25	LATTICE SEMICONDUCTOR	15.25	-0.75	-4.7
OTC	59.13	22.00	APPLE COMPUTER INC.	30.25	-1.25	-4.0	NYS	39.91	9.56	MICRON TECHNOLOGY	32.38	-1.63	-4.8
OTC	33.00	13.75	AST RESEARCH INC.	15.00	-3.25	-17.8	NYS	54.88	36.88	MOTOROLA INC.	44.63	1.38	3.2
NYS	113.50	43.13	COMPAQ COMPUTER CORP.	103.75	-4.38	-4.0	NYS	25.00	14.13	NATIONAL SEMICONDUCTOR	18.88	-1.13	-5.6
OTC	34.38	13.50	DELL COMPUTER CORP.	24.38	-1.50	-5.8	OTC	10.13	6.50	SIERRA SEMICONDUCTOR	8.00	0.00	0.0
OTC	25.00	12.88	GATEWAY 2000 INC. (L)	12.88	-2.75	-17.6	NYS	89.50	55.75	TEXAS INSTRUMENTS	72.13	-2.63	-3.5
NYS	93.63	64.38	HEWLETT PACKARD CO.	79.75	2.75	3.6	OTC	18.88	7.38	VLSI TECHNOLOGY	14.38	0.00	0.0
NYS	26.88	16.00	SILICON GRAPHICS	23.13	-1.13	-4.6	OTC	14.38	4.63	WEITEK	6.50	0.00	0.0
OTC	32.63	20.88	SUN MICROSYSTEMS INC.	21.13	-0.88	-4.0	ASE	20.38	3.63	WESTERN DIGITAL CORP.	13.38	-2.63	-16.4
NYS	50.75	28.13	TANDEM CORP.	36.13	0.50	1.4	OTC	59.75	29.75	XILINX	49.00	-3.00	-5.8
OTC	5.13	2.50	ZEOS INTERNATIONAL LTD.	2.88	-0.13	-4.2	OTC	40.75	22.00	ZILOG INC.	34.50	-1.63	-4.5
Large Systems						OFF 3.44%							
ASE	7.88	4.38	AMDAHL CORP.	7.00	0.00	0.0	OTC	30.50	16.50	AMERICAN POWER CONVERSION	19.50	-2.50	-11.4
NYS	7.63	3.63	CONVEX COMPUTER	4.63	-1.00	-17.8	OTC	24.75	17.13	BANCTEC INC.	21.50	-1.00	-4.4
OTC	4.50	0.50	CRAY COMPUTER	1.50	-0.13	-7.7	OTC	8.00	3.25	CAMBEX CORP. (L)	3.38	0.00	0.0
NYS	33.75	20.13	CRAY RESEARCH INC. (L)	20.25	-0.25	-1.2	ASE	8.25	2.63	COGNITRONICS CORP.	3.50	0.13	3.7
NYS	11.88	6.63	DATA GENERAL CORP.	7.75	0.13	1.6	NYS	20.50	9.00	CONNER PERIPHERALS	13.25	-2.00	-13.1
NYS	48.25	18.25	DIGITAL EQUIPMENT CORP.	21.25	-0.88	-4.0	OTC	39.25	17.50	CREATIVE TECHNOLOGIES INC.	25.25	1.25	5.2
NYS	52.25	33.88	HARRIS CORP.	42.63	-1.25	-2.8	OTC	25.00	5.50	DATA RACE INC. (L)	5.50	-1.25	-18.5
NYS	60.00	40.63	IBM	57.63	1.38	2.4	ASE	11.63	4.13	DATARAM CORP.	4.88	0.19	4.0
OTC	25.75	2.75	KENDALL SQUARE RESEARCH	3.25	0.00	0.0	NYS	23.00	7.50	EMC CORP.	15.25	-2.88	-15.9
OTC	18.75	8.25	NETFRAME	10.50	-0.75	-6.7	OTC	8.25	3.13	EMULEX CORP.	5.13	0.13	2.5
OTC	26.00	6.25	PARALLAN COMPUTER	6.88	0.38	5.8	OTC	21.00	14.25	EVANS & SUTHERLAND	17.00	0.38	2.3
OTC	23.25	6.88	PYRAMID TECHNOLOGY	7.50	-0.25	-3.2	OTC	22.50	7.50	EXABYTE	15.00	-3.13	-17.2
OTC	23.25	11.13	SEQUENT COMPUTER SYS.	13.00	-0.25	-1.9	OTC	34.00	7.50	INTELLIGENT INFO. SYSTEMS	7.50	-0.75	-9.1
OTC	6.84	1.75	SEQUOIA SYSTEMS INC.	4.00	-0.75	-15.8	OTC	5.13	2.00	IOMEGA CORP.	2.25	0.00	0.0
NYS	41.25	20.25	STRATUS COMPUTER INC.	27.13	-0.25	-0.9	OTC	9.75	5.75	IPL SYSTEMS INC.	7.38	0.88	13.5
NYS	16.38	8.50	TANDEM COMPUTERS INC.	11.00	0.00	0.0	OTC	28.50	13.75	KOMAG INC.	18.75	-4.25	-18.5
OTC	30.00	10.75	TRICORD SYSTEMS	10.88	-0.88	-7.4	OTC	8.63	4.38	MAXOR CORP.	6.25	-0.06	-1.1
NYS	16.50	9.88	UNISYS CORP.	10.25	-0.25	-2.4	OTC	8.75	4.88	MICROPOLIS CORP.	6.63	0.00	0.0
Software						OFF 3.46%							
OTC	37.00	16.25	ADOBE SYSTEMS INC.	24.00	-1.88	-7.2	OTC	22.50	10.00	PINNACLE MICRO INC.	14.75	-0.25	-1.7
OTC	34.50	13.50	ALOUS CORP.	26.75	-1.75	-6.1	OTC	9.75	6.25	PRINTRONIX INC. (H)	9.50	0.50	5.6
OTC	8.88	5.00	AMERICAN SOFTWARE INC.	5.25	-0.13	-2.3	NYS	16.38	7.38	QMS INC.	7.63	-0.25	-3.2
OTC	15.75	6.75	ASK COMPUTER SYSTEMS	9.38	-0.13	-1.3	OTC	20.25	9.38	QUANTUM CORP.	14.00	-3.00	-17.6
OTC	61.75	37.00	AUTODESK INC.	51.50	-1.38	-2.6	OTC	9.13	3.13	RADIOS INC.	5.88	-0.88	-13.0
OTC	4.50	2.06	BACHMAN INFO. SYSTEMS	2.13	-0.13	-5.6	NYS	17.75	9.38	RECOGNITION INTERNATIONAL	9.38	-0.50	-5.1
OTC	35.00	20.00	BGS SYSTEMS INC.	22.50	1.75	8.4	OTC	6.88	3.63	REXON INC.	5.88	-0.25	-4.1
OTC	71.00	43.00	BMCO SOFTWARE INC.	54.75	1.25	2.3	OTC	28.75	14.38	SEAGATE TECHNOLOGY	22.50	-2.88	-11.3
OTC	28.25	20.38	BOOLE & BABBAGE	27.75	0.38	1.4	NYS	45.00	23.75	STORAGE TECHNOLOGY	28.00	0.13	0.4
OTC	27.00	10.75	BORLAND INT'L INC.	10.75	-1.50	-12.2	NYS	33.38	21.38	TEKTRONIX INC.	28.50	-0.38	-1.3
OTC	25.00	9.50	BROCK CONTROL SYSTEMS INC.	21.75	1.75	8.8	NYS	104.88	69.88	XEROX CORP.	98.50	-1.00	-1.0
OTC	4.63	2.75	CE SOFTWARE	3.00	-0.13	-4.0	Services						
ASE	30.34	16											





## Jennifer Keys

President, Swift Digits, a data-entry company in Lake Los Angeles, Calif.

## In Your Face for Windows

Personalized photo screen saver from Hilsoft in Souderton, Pa.



Here's a new one for computer haters: a service from phone company IDT in which the company sets up an E-mail address for you, then takes your E-mail messages and sends them to your fax machine. One of the service's biggest proponents is IDT's founder, Howard Jonas, who personally refuses to use a computer. "This is great! Now I can read my mail the old-fashioned way — on paper and not on some damn computer screen. I consider myself the protector of America's newest minority group — the computer illiterate."

The service costs \$5 a month regardless of the number of messages received.

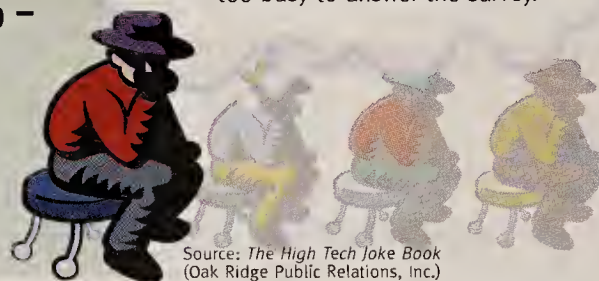
A Feb. 1 Wall Street Journal article reported that scientists have taken the first steps toward creating microchips that use living brain cells.

Here are our Top 5 reasons for using these chips:

- 5 It adds crunch to a sweetbreads sandwich.
- 4 Now you'll be able to say: This is your brain. This is your brain on microchips.
- 3 So Bill Gates' brain can live forever.
- 2 So Joey Buttafuoco's brain can live forever.
- 1 To replace certain politician's brain cells with living brain cells.

## Thought for the day

A recent survey reports that 40% of people work more than 40 hours a week, and 20% work more than 50 hours a week. Programmers were too busy to answer the survey.



Source: The High Tech Joke Book (Oak Ridge Public Relations, Inc.)

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## Inside Lines

### Sign on the dotted line...

X/Open is expected to issue a statement this week confirming that Novell has finalized the transfer of its Unix trademark to X/Open. The process, which began last October [CW, Oct. 18, 1993], was drawn out as the two firms resolved legalities related to Unix System Labs' extensive worldwide trademarks. Novell acquired Unix from Unix System Labs last year.

### Messages in a bottleneck

The Message Oriented MiddleWare (MOM) consortium, which tried — and failed — to form last year, is about to try to resurrect itself with a membership drive directed at users and independent software vendors as well as middleware vendors, according to Mark Teflian, president of Covia Technologies. The idea of the original group, which included IBM, Covia, PeerLogic and Digital, was that a united effort was needed to help users translate MOM technology into real benefits.

### Gupta to upgrade SQL Windows

Gupta plans to announce an upgrade to its SQL Windows client/server development tool kit next week at DB Expo in San Francisco. New features "reflect a change in company direction," said a source close to Gupta. Meanwhile, the firm missed a promised April ship date for a Windows NT version of its SQLBase database. SQLBase 5.2, with support for NT and NetWare 4.0, will now be announced June 5 at Gupta's developer's conference.

### Tools, turmoil and tardiness at Oracle

Also at DB Expo, new graphical computer-aided software engineering (CASE) tools from Oracle — namely, Oracle CASE 5.1 — are expected to be unveiled, according to an Oracle insider. CASE 5.1 is late, having been promised for early this year. Turmoil surrounding the departure of Oracle's CASE visionary, Richard Barker, contributed to the delay, according to a source high up in the International Oracle Users Group. Barker, along with CASE colleague Geoff Squire, quit Oracle several months ago for executive positions at Open Vision, a client/server systems management firm.

### Big Blue highway under construction

IBM will unveil the road map for its piece of the information superhighway at Comdex/Spring next week, according to a source close to the company. Code-named In-Touch [CW, April 18], the upcoming service has been likened to a business version of the Internet without the security and reliability issues. The Comdex announcement will be the first time IBM talks about the service on the record, but the chatter will be about technology and architecture.

### Microsoft says, 'Me too'

Lotus did it. Novell did it. And Microsoft is telling users that it, too, will partner with AT&T to offer a public network service. The two companies were at customers' sites recently, pitching a service that makes a company a node on an AT&T LAN, which users access via Messaging Application Programming Interface. Microsoft said it is not announcing the AT&T partnership anytime soon and that such services won't be limited to AT&T anyway.

### Digital's name game

How does "AdvantageUnix" strike you? OK, how about "Unix-works?" Those are two of the names that have been bandied about for Digital's OSF/1 version of Unix, which the company plans to rename to reflect its diminished ties with the Open Software Foundation.

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